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APRIL 1950

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CHEMICAL PROCESSING

The News Magazine of Processing Developments and Control



Highlights

of this issue's
235 articles

Describing developments in
processes, techniques, materials,
equipment

Soybean Oil Processor Meets
Stiffening Competition by Modernizing
with Rotary Solvent
Extractor 8

Trial Lots of Beta-substituted
Propionitriles Foster Chemistry
Investigations Into Applications
. 16

Government Approves Non-
toxic Plasticizing for Use in
Meat-packaging Films . . . 22

Handle 1200 Cases of Household
Cleanser per Hour with
Fork Truck; Rarely Break a
Bottle 34

Continuous Measurement of
Flow's Refractive Index Eliminates
Spot Sampling 42

Severe Service Requirements
Stimulate Developments in
New Metals 48

The Cover Picture

Flat plate evaporators in
this Scandinavian sulfite
pulp mill don't have to be
shut down when removing
gypsum scale from heating
surfaces . . . Find out why
on Page 94

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6. Refining of aromatic and paraffinic solvents by polymerization of the olefins they contain.
7. Modification of mixtures of esters and acids by polymerizing conjugated compounds selectively.



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"That's Interesting"

Ultrasonics simplify and speed tedious cleaning operations

Tedious cleaning jobs which formerly required several separate operations and long hours of labor now can be accomplished in a matter of seconds by employing "ultrasonics", or high-frequency sounds pitched too high to be heard by human ears.

In tests at General Electric's General Engineering and Consulting Laboratory, small metal parts have been stripped of

How About an Ultrasonics Boy-washer?



MAC MACLEOD

grease and grime in less than 10 seconds, according to Dr. Robert O. Fehr, G-E engineer. Cleaning them by usual methods would have required at least an hour's time, he said. Dr. Fehr envisions ultrasonics cleaning-tanks along production lines, through which small parts will pass and be cleaned. "Use of ultrasonics is not yet practical in the home," he states, "but sound waves certainly can be put to good, economical use in industry."

Urge continued approval for re-use of single trip drums

Use of single-trip containers (primarily include 18 gauge drums used for shipping industrial finishes and other similar materials) was to be banned as of March 1, according to recent announcement of The Bureau of Explosives.

The National Paint, Lacquer and Varnish Association, in its official publication "Coatings" points out that such action will work a hardship on manufacturers who have been using single trip drums satisfactorily over the past ten years. Also stressed is the report of Department of Commerce which shows a backlog of unfilled orders for over 3 million of these drums. To continue shipments during this shortage many manufacturers have drum cleaning operations in their own plants to maintain a satisfactory stock pile. Others obtain cleaning service locally.

Reuse of single-trip drums has been a temporary measure approved by the Bureau of Explosives. Since the end of the war it has been necessary to continue this system. National Paint, Varnish & Lacquer Association filed a protest as did the National Barrel and Drum Association. The former now reports that it has been advised that the proposed cancellation has been postponed until August 31, 1950. (Summarized from "Coatings" — publication of The National Paint, Varnish & Lacquer Association, 1500 Rhode Island Ave., N. W., Washington 5, D. C.)

German Insecticides will be produced, marketed here

Powerful new insecticides developed by the German chemical company Farbenfabriken Bayer will be produced and marketed in this country by a jointly owned subsidiary of the Geary Chemical Co. and the Pittsburgh Coke & Chemical Co.

These insecticides are to be made available for manufacture and distribution in this country under the terms of a contract between Bayer and the Geary Chemical Corp. and approved by both the American and British occupation authorities in Western Germany. The agreement provides that scientific and manufacturing discoveries in the agricultural chemical field, developed in the Bayer laboratories both now and in the future, will be made available to the Geary organization.

Extension of Geary Chemical Corp's agreement with Bayer to cover other agricultural products such as fungicides, rodenticides and plant hormones, as well as insecticides, is provided for, as is the exchange of related technical and scientific information.

(Continued on third cover)

CHEMICAL PROCESSING

(CHEMICAL PROCESSING PREVIEW)

The News Magazine of Processing
Developments and Control

VOL. 13

NO. 4

APRIL, 1950

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Highlights

(Continued from front cover)

*These articles have been selected by
the Editors as having unusual in-
terest*

*** Clarified Sugar Juice Has Constant Quality Due to Adjustable-stroke Diaphragm Pump . . . Capacity of unit for pumping mud from continuous settling tank can be changed while it is in operation 8**

*** Ethyl Corp. Now Repairs Tanks, Vessels in Fraction of Time Formerly Needed . . . Combination mask and welding shield permits continuous work in toxic-fume areas, with little preparation** 13

*** Flexibility, Light Weight of Plastic Pipe Cut Installation Costs . . .** Number of fittings are less, since corrosion-resistant pipe can be bent easily . . . 20

*** Controls Many Plant Diseases on Vegetables and Fruits . . . Synthetic organic fungicide has undergone testing in many U. S. locations, foreign countries** 28

*** Record Ppm Sulfur Dioxide in Air Stream . . .** Also records average concentration over 1/2-hr period; checks its own zero reading every 30 minutes 47

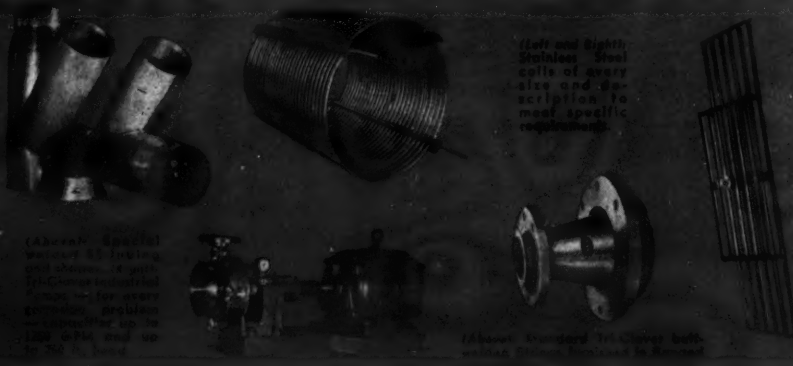
*** Magnesium Anodes Continue The Fight Against Underground, Underwater Corrosion . . .** Several types provide protection on wide variety of coated or bare pipes, structures 58

*** Skirted Bubble Caps Provide Increased Bubbling Area . . .** Screened units are of value in towers operating under heavy liquid loads, low vapor rates

*** Scale Removed from Evaporator Heating Surfaces Without Shutting Down Process . . .** Vapor and condensate flow periodically switched to pass through liquor lines, thereby washing away fouling deposits.. 94

*** Dries Heat-sensitive Materials While Frozen, Leaving Them Unchanged Chemically . . .** Selective absorption heating unit especially suited to drying materials damaged by 100° F temp. 96

*** No Special Atmospheres Needed**
When Furnace Has Lithium Vaporizing Chamber . . . Lithium atmosphere slot forge furnace protects against scaling to 2400° F 120



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CHEMICAL PROCESSING

EDITORIAL CONTENTS

That's Interesting	2
Editorial Awards	6
Guest Editorial	7
New Solutions of Processing Problems — 10 actual "installation type" articles on "how it was done better"	8
Materials — 20 reports on developments in materials that make for better processing	16
Material Handling — 8 articles describing developments in handling	34
Process Instrumentation — 20 reports on better process control through instruments	42
Briefs — 9 "quick looks" at interesting articles in contemporary publications	56
Ideas — 9 ideas gleaned from this or other industries that offer possibilities in chemical processing	58
New Literature — 98 reviews of current literature	66
Processing Equipment — 61 articles on developments in equipment	80
Conventions & Exhibits	125
Special Readers Service	
1. Product Directory — "Quick-locator" of all types of materials, instruments, processing equipment . . . lists everything discussed in this issue, with page references	132
2. To Get More Information on Products . . . See slip opposite page	2
3. To Subscribe to This Magazine . . . see slip opposite page	134
Advertisers in This Issue	134

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- saved time
- cut costs

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- additional equipment
- better material handling

—or by other means of achieving better quality, greater efficiency, etc. (See types of chemical plants receiving *Chemical Processing*, as listed on page 5 of this issue.)

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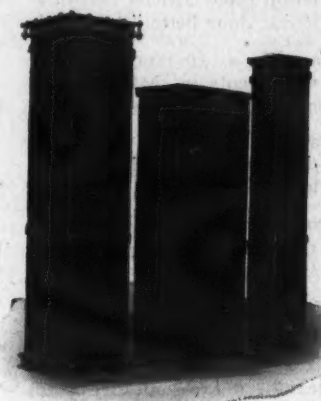
\$250, \$150 and \$100,

respectively, for first, second and third best reader-submitted "New Solutions" articles of the year.

JUDGING of the three best reader-submitted "New Solutions" of the year will be handled by an Editorial Awards Committee consisting of 10 impartial reader-judges. Members of this committee will be announced later.

[To assure editorial consideration of your entry, be sure to read the rules appearing on page 128, this issue.]

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CHEMICAL PROCESSING

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A New Problem for Research

By
ROBERT E. WILSON

Chairman of the Board
Standard Oil Company (Indiana)



Graduate, College of Wooster, O., and MIT. Research assoc. and later Dir. of Research, MIT. Major, CWS, US Army, World War I. Ass't. Dir. of Res., Whiting refinery, Standard Oil Co. (Ind.), 1922; headed Devel. & Patent Dept., 1929, then became a director and VP. Headed Pan Amer. Petroleum & Transp. Co. 1935-44, returning to parent company, Standard Oil Co. (Ind.), as chairman of board and chief exec., 1945. Director, Chase and First Nat'l banks, New York and Chicago. During World War II he was chief petroleum consultant for gov't., and later chairman, Committee on Petroleum Economics of the Petroleum Industry War Council.

IF WE compress 500,000 years of man's development into 50 years, it is only one year since man was still a nomad. Six months ago a few men learned to write. Within the last day have come radio, television, antibiotics, nylon, and dozens of other things we consider present-day necessities. Within the last hour, atomic energy began to show real promise of usefulness.

What has happened in this last day? The essential factor is *applied research*, carried out on a large scale, mainly by industry.

Since the end of World War I, the number of men engaged in applied or industrial research has expanded 40 or 50-fold. It seems inconceivable that this rate of acceleration can continue. A similar increase in the next "day", or 30 years, will leave hardly enough people to do the world's production and service jobs!

The petroleum industry today is largely a demonstration of how research has improved products, increased yields, cut costs and increased the scale of operations. At the same time, research has done even more for consumers of petroleum products.

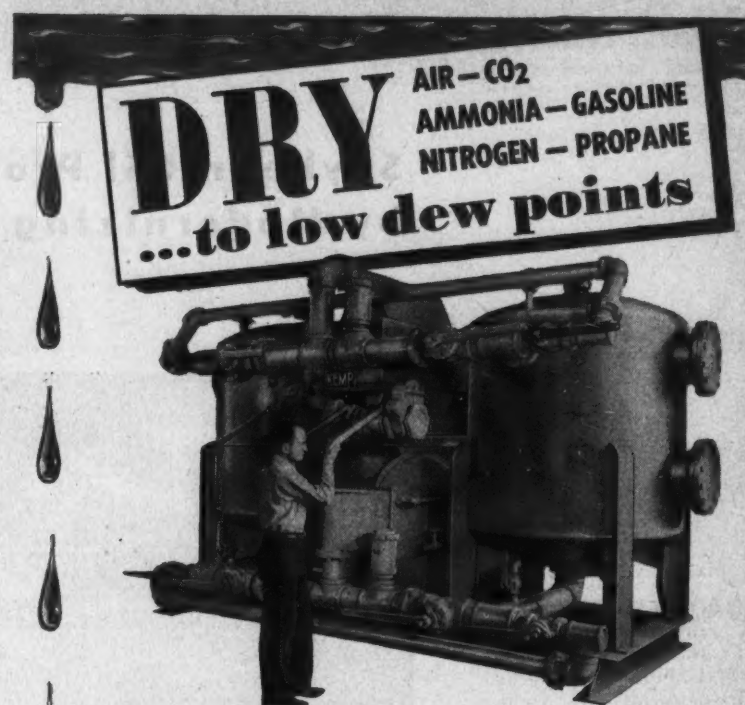
Present-day management has no doubts as to the need for expanding research. But the time has passed when a Daniel Boone, with rifle and pack horse, can add greatly to our store of knowledge. To make significant additions today requires a well-organized Byrd expedition.

Processes in our plants have been worked over by dozens of good chemists, physicists and engineers to see what could be done to reduce costs. The efficient but costly equipment they have designed has increased our investment so much that it is difficult to find a process sufficiently better to justify scrapping present equipment. Fixed charges are a far larger part of total costs than they once were.

This increases the difficulties of showing profitable results from research, and indicates need for more research on reducing investment costs. Research men are too often inclined to be perfectionists in design of large-scale equipment.

True, we must expand our research if progress is to continue at anything like recent rates. There is, however, some question in management's mind as to whether

(Continued on page 11)



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Soybean Oil Processor Meets Stiffening Competition by Modernizing with Rotary Solvent Extractor

Schematic view of the new rotary solvent extractor



PROBLEM: Projected estimate of market trend in soybean products in 1947 was the "fuse" that touched off modernization of the Wichita, Kansas, plant of Soy-Rich Products, Inc. Officials of the company anticipated very keen competition, and realized the necessity for rapidly increasing the efficiency of the plant to maintain market position. Pressing production needs demanded that operation continue while modernization was in progress.

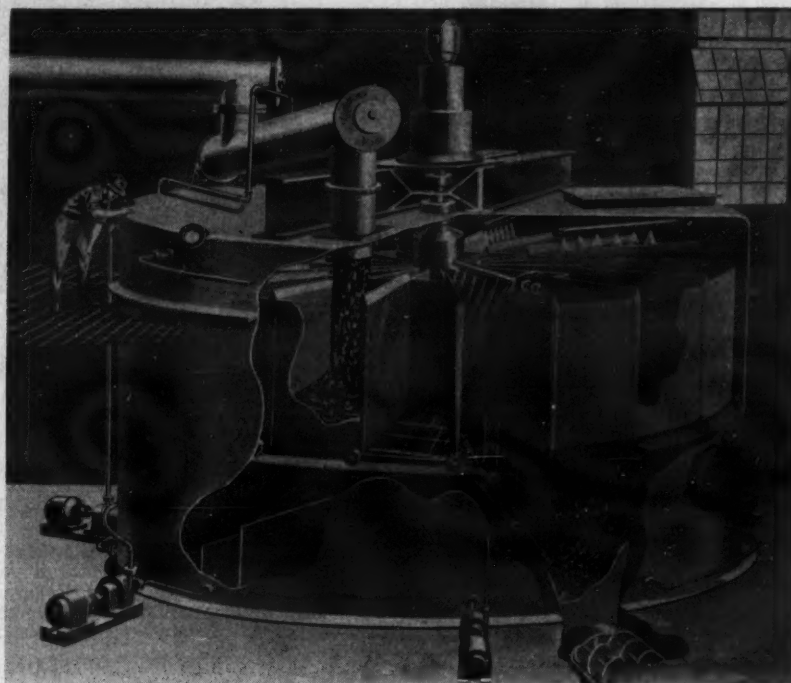
Solution: First decision was to replace continuous screw press equipment with solvent extraction. A recently developed process utilizing a rotary extractor called a Rotocel was chosen. Up to this time, this type of extractor had never been built on a commercial scale.

Construction involved erection of a structure to house and support extraction equipment, and installation of several items of equipment for preparing the beans in the building housing the existing screw press. Steel supports had to be installed in the old building to support the new equipment.

Since hexane, a hazardous material, is used for extraction, structure housing the extraction equipment is outdoor type.

Screw press operations had to be continued until the solvent extraction plant was in full operation. Existing boiler capacity was only slightly in excess of that needed for the screw press plant, and, thus, was not adequate for the old and new plants combined. To keep within boiler capacity, screw press operations were gradually decreased while solvent extraction capacity increased.

Results: Each day, Soy-Rich is recovering 6,201 lbs more oil than with the screw press installation. It is estimated that process recovers about 653 lbs more per day than ordinary solvent extraction facilities of comparable size, but not using the new rotary extractor.



New, efficient facilities installed while old screw press operation continued; company recovers 6,201 lbs more oil per day now

Screw press process leaves about 4½% oil in the meal, while this method of solvent extraction leaves only about 0.28%. Oil yield has been running 6.79 lbs per ton of beans greater than was guaranteed in the contract.

Production is running 30 to 35% above the rated capacity of 75 tons per day. Efficiency has not been sacrificed to obtain this high production level. Steam consumption is approximately 90% of the guaranteed requirement — representing a further saving.

Source: The Rotocel extractor is made by Blaw-Knox Company, Dept. CP, Blawnox, Pa. . . . or for more information check CP 7018 on handy form, pages 2 and 3.

Clarified Sugar Juice Has Constant Quality Due to Adjustable-stroke Diaphragm Pump

Capacity of unit for pumping mud from continuous settling tank can be changed while it is in operation

PROBLEM: Control of "mud level" in continuous multi-tray settling tanks at a sugar refinery in Peru is of vital importance. The pure sugar juice is separated from the mud, a slimy precipitate of colloidal organic matter, in these units.

Trays of each tank are conical. A scraper on each operates at low velocity. Clear juice rises to top on each

tray, and mud settles to bottom, where scraper moves it to central downtake in center of equipment. Accumulated mud is pumped from the bottom of the unit continuously.

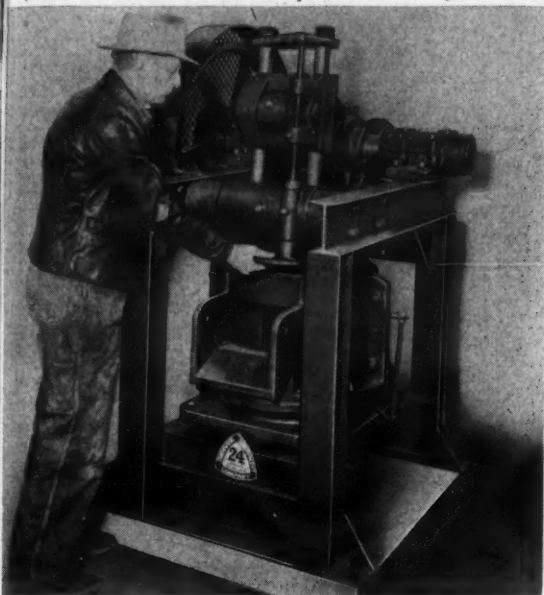
If mud is pumped out too fast, some clear juice goes with it. On the other hand, if it is not pumped out fast enough, the clear juice gets muddy. It is frequently

CHEMICAL PROCESSING

necessary to adjust pumping rate because of changes in load conditions in settling tank.

Ordinary diaphragm pumps have to be stopped before pumping rate can be changed. Hence, they are unsatisfactory for this type of service because, while they are not operating, mud level builds up and overflowing juice becomes cloudy.

Solution: The stroke of the diaphragm pump that does the pumping of the mud in this refinery can be adjusted while the pump is operating. All that is necessary is the turning of a convenient handwheel. Position of movable block on rocker arm provides a visual indication of stroke length. The handwheel turns a heavy rod with an Acme thread, moving pivot end of connecting rod in relation to fulcrum point of walking beam.



While diaphragm pump is operating, operator can adjust length of stroke by turning handwheel

This type of pump is available in an assortment of drives, and has bronze eccentric and cast-steel eccentric strap or connecting rod. Eccentric shaft bearings are heavy-duty, replaceable, babbitted pillow blocks. All moving parts are pressure lubricated. Frame is open around pump bowl to simplify diaphragm replacement.

No eccentric movement is imparted to diaphragm; the plunger rod moves in practically a straight line, hence avoiding side-flexing of diaphragm.

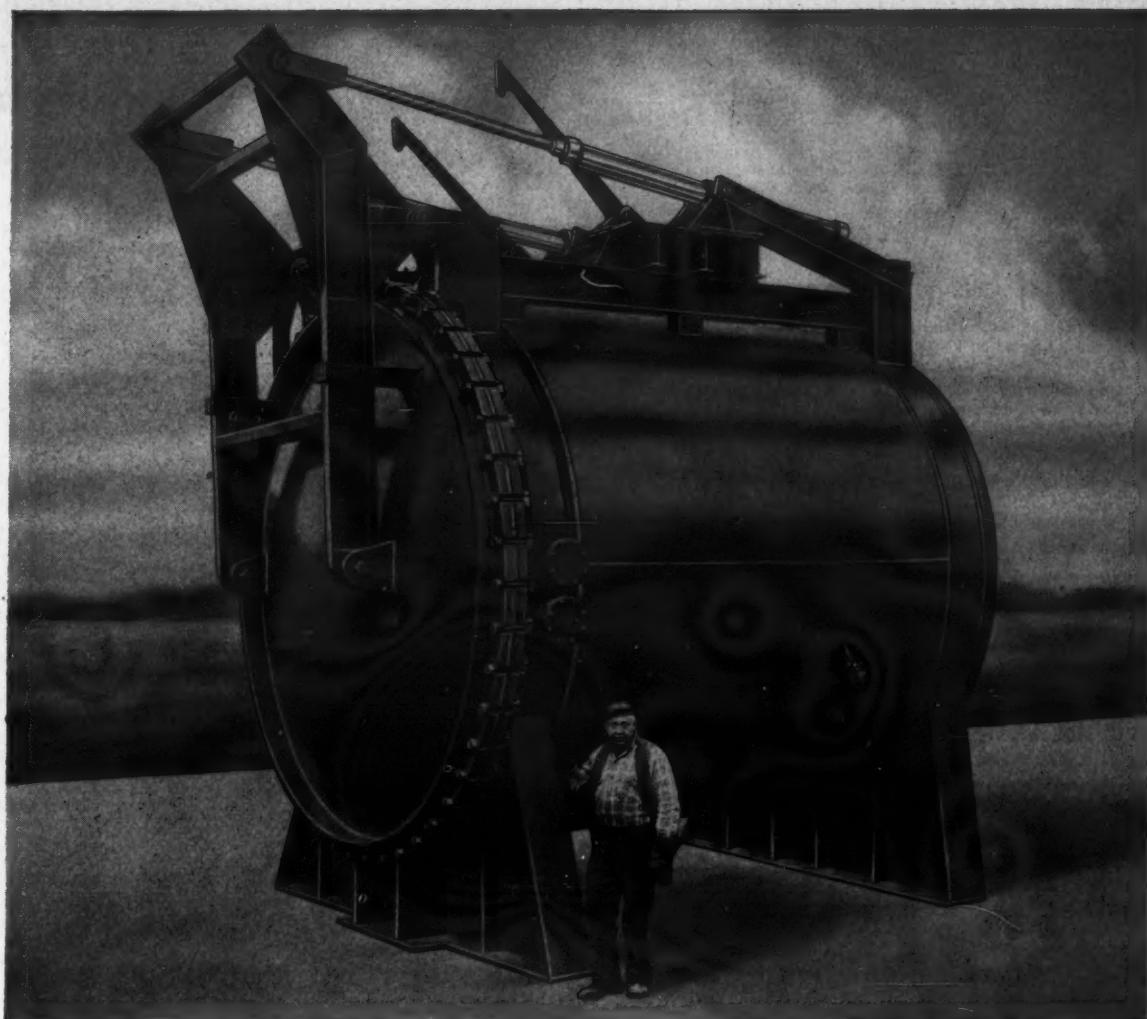
Upper and lower valves have replaceable, rubber wearing faces. They operate against rubber valve seats.

Pumps are made in 2, 3, 4, 5 and 6" sizes. All sizes are built in simplex, duplex and triplex types. Sizes below 5" are also built in quadruplex and quintuplex types.

Results: Quality control of clarified sugar juice going to the multiple-effect evaporators is very exact. Shut-down time has been almost eliminated, thus reducing operating costs.

Data on life of the pump diaphragms in this particular installation are not available. However, life has been found to be as long as one year in other installations, with pump in continuous operation.

Source: Adjustable-stroke diaphragm pumps are made by Denver Equipment Company, Dept. CP, 1400 17th St., P. O. Box 5268, Denver 17, Colo. . . or for more information check CP 7019 on handy form, pages 2 and 3.



35 TONS OF PRECISION FABRICATION!

Another ACME application of efficient design and precision fabrication, to a unit of sizeable proportion, is this Horizontal Jacketed Tank. Made with a steel shell 1 1/4" thick, the over-all length measures 17'-6"; inside diameter, 11'-4". Tested at 150 psi and full vacuum, it will operate at a working temperature of 650° F. with a volume of 11,000 gallons. Efficient hydraulic mechanism provides trouble-free operation of the 5-ton door.

Through extensive experience acquired in the design and construction of many types of

process units and complete installations, Acme engineers and craftsmen are pre-eminently equipped to assist in the solution of virtually any chemical processing problem.



Heat Transfer • Evaporation • Drying • Distillation • Absorption • Extraction • Crystallization

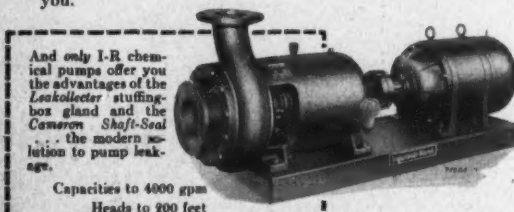
When inquiring check CP 7020-on handy form, pgs. 2-3

I-R Chemical Pumps are Built for Easy Maintenance — and LESS OF IT

Ingersoll-Rand chemical pumps are ruggedly constructed to last longer on the job — and their overall simplicity, with all parts easily accessible, means less "time out" for maintenance.

The corrosive-resistant qualities of Ircamet and other materials used in the construction of these pumps, have been thoroughly proven by both laboratory and field tests. The short, rigid, stainless-steel shaft, supported by large, oil-lubricated ball bearings, prevents impeller whip and eliminates many stuffing box troubles. A removable suction nozzle is provided to give access to the impeller.

There are many other easy maintenance features of I-R chemical pumps described in Catalog 7095. Ask an Ingersoll-Rand engineer for your copy. Or, if you have a special pumping problem, he'll be glad to help you.



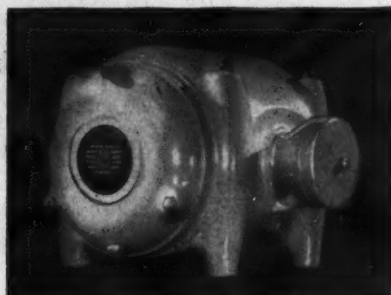
And only I-R chemical pumps offer you the advantages of the Leakolator stuffing box gland and the Cameron Shift-Seal — the modern solution to pump leakage.

Capacities to 4000 gpm
Heads to 200 feet

Ingersoll-Rand 418-10
Cameron Pump Division
11 Broadway New York 4, New York

When inquiring check CP 7021 on handy form, pgs. 2-3


**SHEDS
WATER
LIKE
A DUCK**



U. S. SANITARY MOTOR

WASHABLE FOR IMMACULATE SANITATION

1/2 to 7 1/2 h.p.

Meets all
Sanitary
Standards

U. S. asbestos-protected Sanitary motors are specially designed for applications where scrupulous sanitation is to be maintained. They are devoid of crevices or bacteria-collecting pockets, can be hosed and shed water "like a duck." Ideal for chemical processing plants.

U. S. ELECTRICAL MOTORS, Inc.

200 E. Slauson Ave., Los Angeles 54, Calif.
or Milford, Connecticut

REQUEST FOR SANITARY MOTOR BULLETIN

U. S. Electrical Motors, Inc. Dept. CCP
200 E. Slauson Ave., Los Angeles 54, Calif.
or Milford, Connecticut.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Free Bulletin

When inquiring check CP 7022 on handy form, pgs. 2-3

Installation of Fully-automatic Filling Equipment Meets Increased Production Demands

Has twice production capacity of former installation

PROBLEM: Filling operations at the Milton Bradley Company, Springfield, Mass., required machine to handle either free-flowing liquids or thick pastes in varying unit volumes. Cleanliness of fill is essential.

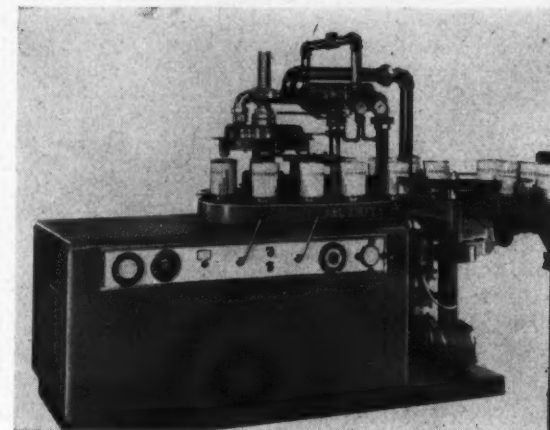
Five-spindle semi-automatic filling machine was being used for poster paints, finger paints, and adhesives. Labor requirements were 4 girls and 1 operator. As volume of business in these materials increased, capacity of this machine became inadequate to meet production demands.

Solution: Karl Kiefer Two-Stream Conveyor-Type Filling Machine, known as the "Vari-Visco", is now installed at this plant. Automatic capper is employed in conjunction with this machine.

In operation, containers are loaded onto machine's conveyor belt from a feed table. Spacer wheel engages containers as they are carried forward, separating and synchronizing them for the feed. Containers are placed under filling spouts by the feed mechanism. Discharge wheel returns filled containers to the conveyor belt, whence they pass to the capping machine.

Volume of filling and rate of speed are easily regulated by turning handwheels on machine's front panel. Safety features are provided — should malformed containers jam feed, machine is automatically stopped.

Results: Twice as many containers are now being filled with the Vari-Visco installation as was possible with former machine. Production demands have been met. Only 2 girls and 1 operator are now required for



Filling machine satisfies requirement for neatly filling varied-sized containers with liquids of differing viscosity

operation, a substantial labor saving. Varied-sized containers are now being neatly and accurately filled with materials of differing viscosities. Complete filling operation is reported to be fully-automatic.

Source: Filler is a product of The Karl Kiefer Machine Company, Dept. CP, Cincinnati 2, O. . . or for more information check CP 7023 on handy form, pages 2 and 3.

Castings handled in one-half time previously required . . .

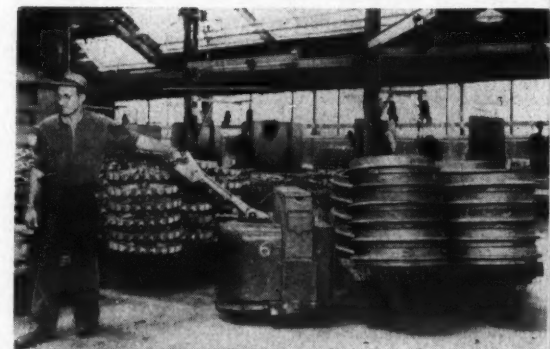
electric lift trucks speed movement of items between departments, require less storage space

Problem: Large steel foundry used many hand lift trucks to transport idler wheel castings from molds to cleaning department, machine shop, heat treating shop, inspection department and finally to shipping.

Men who handled these castings had other duties in the foundry. Management was dissatisfied with amount of time required to transport the items, and also wished to increase productive time available from men who handled lift trucks.

Solution: Five electric lift trucks were used to replace much larger number of hand lift trucks. Illustration shows 4000-lb capacity truck carrying 22 of the idler wheel castings, each of which weighs 150 lbs. Trucks handle both skid and box top loads.

Four of the models have capacity of 4000 lbs; the fifth can carry 6000 lbs. Physical exertion is eliminated in



Electric lift truck handles 3300 lbs of castings without tiring operator

the handling operation. All controls are in the handle; operator raises and lowers load, operates forward and reverse speeds, steers and brakes the unit with 1 hand.

Results: Spokesman for the foundry states that 1

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Resear
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Physic

man now handles twice the volume of castings that 2 men handled with the hand lift trucks. Since man-hours required for handling work are cut in half, that much more time for other work is available from the men involved. The five trucks take up less space than the larger number of hand lift trucks, thus providing more room for other purposes.

Source: Bulletin describing "Power-Ox" electric lift trucks is available from the maker, Barrett-Cravens Co., Dept. CP, 4609 S. Western Ave., Chicago 9, Ill. . . . or for more information check CP 7024 on handy form, pages 2 and 3.

Oil in steam condensate reduced from 20 to less than 1 ppm . . .

filtration process in operation on 2000-hp installation shows marked efficiency in 8-month period

Problem: A Minnesota manufacturing plant was forced to reduce the amount of cylinder oil in its steam-condensate return from an existing 20 ppm.

Solution: Plant now has a new, nearly automatic process in operation on a 2000-hp installation for removal of oil from its steam condensate. Process calls for a constant admixture of a slurry — an oil absorbent in water — to the oil-contaminated return, and subsequent filtering through paper. Admixing is accomplished by a proportioning pump. Oil removal is continuous from beginning to end of the cycle.

Flow rate is $2\frac{1}{2}$ to $3\frac{1}{2}$ gallons per minute per square foot of filter area at a temperature of 125-160°F. Solid

products of filtration are easily disposable; they will not cause stream pollution. Operation of process requires not more than 1 or 2 hours of a man's time every 36 hours.

Results: Concentration of cylinder oil in steam-condensate return has been reduced to less than 1 ppm. This, it is reported, is the first time oil in steam condensate has been reduced to this unusually low point. Process has been in operation for over 8 months; shows marked efficiency.

Source: Process is announced by the Sparkler Manufacturing Company, Dept. CP, Mundelein, Ill. . . . or for more information check CP 7025 on handy form, pages 2 and 3.

A New Problem (Continued from page 7)

the law of diminishing returns may not be starting to take hold. Some time we shall reach a place where other operations cannot carry the load of continually expanding research. Our own company spends about \$9 million annually on research and development.

We may well be approaching a point where, though we may save a few workers here and a few dollars there, we must add a chemist in operations and one in the laboratory to keep up with things. The resulting economy would be small.

Research has long done a fine job in studying costs of operations of all sorts, but the time has come when it must give attention to cutting its own costs.

Physician, heal thyself!

APRIL, 1950

TEXROPE

Greatest Name in V-Belt Drives

Super-7 Texrope A and B Belts

Powerful cord structure impregnated with live rubber, extra stiffening plies, resilient rubber cushion, tough, double-wrapped, bias-cut cover, precision molded, accurately matched.

Super-7 Texrope C, D, and E Belts

Famous grommet construction, no splices where failure can start, heavy rayon cord, rubber cushion supports cords at pitch line, bias-cut double-wrapped cover has high wear resistance, accurately molded, matched under load.

LONG LIFE FOR YOUR DRIVES

YOU GET MORE than good belts when you standardize on *Super-7 Texrope* V-belts in your plant. You also get the benefit of the greatest V-belt experience in the world. This means you are sure of exactly the right drive for longest life on your job. *Texrope* Drive Department of Allis-Chalmers originated the multiple V-belt drive and there are more *Texrope* multiple V-belt drives in operation than any other make.

High Capacity Belts

These belts have extra strong cords, special rubber cushion and tough neoprene cover to give them 40% greater capacity than standard belts at proportionately higher price. Recommended only for applications where space is limited or other special

conditions demand a heavier duty belt. Made in A, B, C, D and E sections.

Complete V-belt Service

Get everything you need for your V-belt drives . . . new and replacement V-belts, standard and variable speed sheaves and speed changers . . . from one reliable source. 144 page *Texrope* Pre-engineered Drive manual covers 90% of requirements. Get your copy today from your A-C Authorized Dealer or Sales Office or write for Bulletin 20B6956.

Texrope and *Super-7* are Allis-Chalmers trademarks. *Super-7 Texrope* V-belts result from the cooperative research of Allis-Chalmers and B. F. Goodrich; and are sold only by A-C dealers and offices.

ALLIS-CHALMERS, 1151A SO. 70 ST. A-3021
MILWAUKEE, WIS.

**Sold . . .
Applied . . .
Serviced . . .**

by Allis-Chalmers Authorized Dealers,
Certified Service Shops and Sales Offices
throughout the country.



MOTORS — $\frac{1}{2}$ to 25,000 hp and up. All types.

CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.



PUMPS — Integral motor and coupled types from $\frac{3}{4}$ in. to 72 in. discharge and up.

ALLIS-CHALMERS

When inquiring check CP 7026 on handy form, pgs. 2-3

Economical
ORGANIC
Sequestering
Agent

PFIZER
CITRIC
ACID

ADVANTAGES

1. Prolonged sequestering action.
2. Non-toxic and non-volatile.
3. Efficient over a wide pH range.
4. Inexpensive.

• Pfizer Citric Acid is an economical organic sequestering agent widely applicable in the soap, textile, drug, cosmetic and other industries. It is economical to use because it is an inexpensive organic sequestering agent which provides long lasting sequestering action. This is especially desirable in the textile industry for dye baths.

Because Citric Acid is non-toxic it may find use in places where a sequestering agent is needed in cosmetics and pharmaceuticals. In these products the prolonged sequestering action of Citric Acid enhances the shelf-life of the products. Citric Acid provides efficient

sequestering action for metallic ions including copper, iron, aluminum and calcium in a pH range of from 5 to 10.

Pfizer Citric Acid is available in the U.S.P. grade and as Anhydrous Citric Acid. For further information on the sequestering action of Citric Acid please write: Chas. Pfizer & Co., Inc., 630 Flushing Avenue, Brooklyn 6, N.Y.; 425 North Michigan Avenue, Chicago 11, Ill.; 605 Third Street, San Francisco 7, Calif.



PFIZER

Manufacturing Chemists for Over 100 Years

When inquiring check CP 7027 on handy form, pgs. 2-3

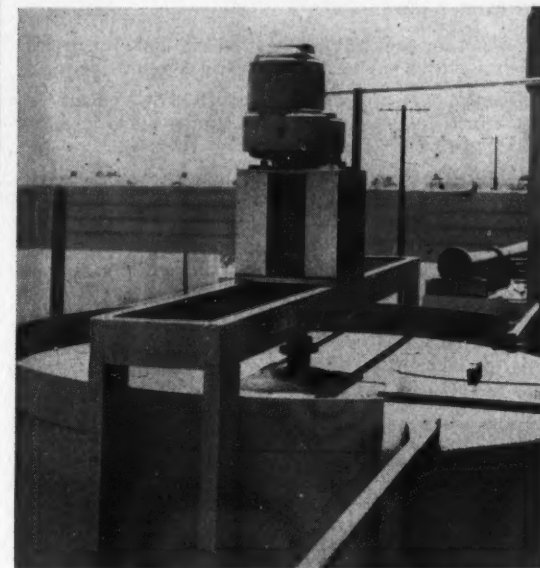
NEW SOLUTIONS of processing problems

Mixing problem conquered by slow-speed gearmotors . . .

dependable, weatherproof, 20-rpm motors drive the agitators in outdoor tanks

Problem: For many years, Vegetable Oil Products Company, Wilmington, California, had not been satisfied with the agitation in their outdoor tanks. The various types of drives and motors they had been using did not provide the proper speed.

Solution: Some time ago, the company installed 1½-hp, 20-rpm, face-mounted gearmotors to drive the agitators. These motors are integrally built with helical



Slow-speed gearmotor on outdoor agitating tank

gears and have weatherproof design. Units are compact due to use of off-set shafts. They can be mounted in any position.

Alloy gears, pinions and shafts are heavy-duty and precisely machined. Special oil-seals operate on highly polished steel shafts. Double and single row ball bearings are employed liberally throughout. Splash lubrication. Oil leakage is prevented by tight gear cases.

Results: These motors have been giving the correct agitating speed for more than a year. Weather conditions do not affect operation adversely.

A flange-mounted style is also available.

Source: Slo-Speed motors are manufactured by Sterling Electric Motors, Inc., Dept. CP, Los Angeles 22, Calif. . . . or for more information check CP 7028 on handy form, pages 2 and 3.

Ethyl Corp now repairs tanks, vessels in fraction of time formerly needed . . .

combination mask, welding shield permits continuous work in toxic-fume areas with little preparation

Problem: Safety Department of the Ethyl Corporation sought means of repairing gasoline tanks safely without necessity of costly tank cleaning and repairing operations.

Hazards of entering or working in petroleum products tanks arise from toxic and explosive nature of the

CHEMICAL PROCESSING

NEW SOLUTIONS of processing problems

vapors, from presence of tetraethyl lead and its decomposition products in the sludge, rust and scale, and from other contaminants such as sulfur dioxide, oxides of nitrogen, and occasionally hydrogen sulfide.

When storage tanks were to be welded, it was necessary for cleaning crew to spend several days freeing the tanks from vapors, removing sludge, dust, rust and scale, and setting up a mechanical ventilator to exhaust fumes during welding.

Solution: Combination mask and welding helmet was developed in collaboration with several oil companies and the Mine Safety Appliances Co. Unit provides protection against ultra-violet and infra-red radiation, impact and pitting, and inhalation of toxic fumes.

Facepiece assembly consists of airtight rubber mask and chrome leather hood with flexible breathing tube connections.



Permits uninterrupted welding even in areas having heavy concentration of toxic fumes

Aluminum frame and flip-front assembly holds lenses. One lens is permanently sealed in the hood; other two are removable pitting and welding lenses inserted in flip-front. Different shades of lenses can be used depending on type of welding to be done. Flip-front permits operator to examine work without interfering

with respiratory protection.

Facepiece provides 81-degree lateral angle vision, 37-degree vertical angle vision, in contrast with 60-1/2 and 30 degrees, respectively, in standard welding shields.

Unit weighs 8 ozs more than standard shields, but has improved weight distribution through face and head supports and does not protrude so far from the face.

Facepiece is adaptable to 3 different types of masks: fresh air hose, airline respirator, and canister. Latter two are for use only outside of tanks. When connected to air line, incoming air stream enters mask at chin level and flows over lens to prevent fogging. Two spent air outlets at jaw level direct air stream around interior of hood.

Results: Only preparation now required prior to welding is to eliminate explosion hazard in tank and underlying soil. Welding operations are performed in fraction of time previously required when mask is used with approved fresh air supply line.

Although developed specifically for use in tanks holding petroleum products, the combination mask and welding shield has proven useful in many other applications. Used in repair of large exhaust lines carrying carbon monoxide, in repair of refrigeration systems, in maintenance of pressure vessels in which heat of welding might liberate toxic vapors, and many similar tasks, the device has reduced preparation time and cut actual welding time.

Source: Produced by Mine Safety Appliances Co., Dept. CP, Pittsburgh, Pa. . . or for more information check CP 7029 on handy form, pages 2 and 3.



DRY SEAL CLOSURE

- PRE-FORMED FOR QUICK ACCURATE SEALING
- EASILY CLOSED WITH HAND ROLLERS
- NO SEWING MACHINE IS NECESSARY
- MASKING TAPE EXTENDING BEYOND EDGES, PERMITS QUICK REMOVAL FROM SEALING SURFACES

CHASE PROTEX WATERPROOF PAPER LINED BAGS

CEMENTED CENTER SEAMS!

TOPMILL Burlap or tested Cotton fabric . . . laminated to crinkled kraft with various waterproof adhesives. Cemented center seams and taped bottoms eliminate porous sewing holes, assure additional moistureproof protection. Sharply printed for quick brand identification. One of the many Chase bags of special construction designed to meet unique packaging problems.

CHASE LINERS

They're crinkled and pleated for two-way stretch . . . withstand stress and strain. Safeguard product from outside contamination. Available for added protection of products packed in barrels, boxes, and bags.



CHASE BAG CO.

Chase Bag Co.
309 W. Jackson Blvd.
Chicago 6, Illinois

Gentlemen:

Please send me more information about

- ☐ Chase Waterproof Bags
- ☐ Chase Crinkled Liners

For packaging.....

☐ Please have salesman call

Firm.....

Address.....

Att.:.....

GENERAL SALES OFFICES: 309 W. JACKSON BLVD., CHICAGO 6, ILL.

BOISE • DALLAS • TOLEDO • DENVER • DETROIT • MEMPHIS • BUFFALO • ST. LOUIS • NEW YORK • CLEVELAND • MILWAUKEE
PITTSBURGH • KANSAS CITY • LOS ANGELES • MINNEAPOLIS • GOSHEN, IND. • PHILADELPHIA • NEW ORLEANS • ORLANDO, FLA. • SALT LAKE CITY
OKLAHOMA CITY • PORTLAND, ORE. • REIDSVILLE, N. C. • HARLINGEN, TEXAS • CHAGRIN FALLS, O. • HUTCHINSON, KAN. • CROSSETT, ARK. • SAN FRANCISCO

When inquiring check CP 7030 on handy form, pgs. 2-3

Little filtration faults can make costs BIG

"Visiting with the filter operator, certain practices were noted which certainly did contribute toward high turbidities. Most notable was shutting off the feed to a press after this press was almost spent, and allowing the press to drain. According to the filter operator, when the feed is again turned on at high pressure they get a very substantial flow. It is plain to see that shutting off the feed allowed the cake to drop, and when they turned on the feed again they naturally got a temporary high flow, because it would be the same as pre-coating on a fresh cloth.

"This plant also starts the filter presses on gravity feed. In this connection two bad practices were noted. First, if they do not need the filter right away it is allowed to drizzle at a very low flow, probably allowing some settling of filteraid. Second, when they do turn over to the pump feed, their practice is to shut off the gravity feed before turning on the pump feed. This, of course, makes it possible for the filter cake to fall off, or at least be disturbed.

"Mr. _____ did not know of these faults, and now feels sure that when they are corrected, their troubles will be cured."

(FROM REPORT OF A DICALITE ENGINEER)

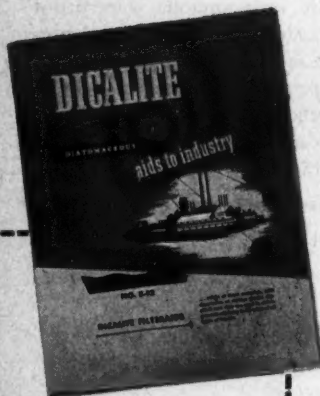
**keep costs
thrifty in '50 ...
USE DICALITE* FILTERAIDS**

If you feel your filtration costs are getting out of hand, or if you feel that operating efficiency is low—why not call in a Dicalite Engineer? Perhaps you have "trouble," such as low flow rates, unsatisfactory clarity, or haze or bacteria that defies removal. From wide experience he can recommend the most suitable grade of Dicalite filteraid for the job; he can also check your present procedure for any change to improve efficiency and reduce costs. Telephone or write the Dicalite office nearest you for prompt action.

DICALITE DIVISION, GREAT LAKES CARBON CORPORATION

NEW YORK 17, N. Y. • CHICAGO 13, ILL. • LOS ANGELES 14, CALIF.

When inquiring check CP 7031 on handy form, pgs. 2-3



SEND FOR YOUR COPY ...
... of this Dicalite Technical Service Bulletin B-12. Covers fundamentals of filtration and describes ways to secure best results from diatomaceous filter-aids. Sent without charge.

**DICALITE
FILTERAIDS**

*Reg. U.S. Pat. Off.

NEW SOLUTIONS of processing problems

Eliminate hand-marking of wooden boxes with automatic printer ...

increased production, better markings, labor savings

Problem: Operations at the New Castle, Pa., plant of the American Cyanamid Company required marking supplementary information on wooden boxes. Rubber stamps and stencils were being employed for these markings — resulting in poor markings, low production, and high labor costs.

Solution: A printer was installed which automatically imprints the boxes as fast as they can be pushed through the machine.



Machine automatically imprints supplementary information on wooden boxes on conveyor lines

Machine uses easily interchangeable rubber type, has built-in self-inking reservoir, handles various sizes of wooden boxes, and is adaptable to conveyor lines as shown in illustration.

Printers are also made to imprint loaded or flat cartons, boxes, and packages on production lines.

Results: Better markings, increased production and labor savings resulted from installation of printing machine.

Source: Industrial Marking Equipment Co., Inc., Dept. CP, 7 E. 48th St., New York 17, N. Y. is the manufacturer. For more information check CP 7032 on handy form, pages 2 and 3.

Oil company finds lasting lining for sour gas treating tank ...

saran rubber sheets resist chemicals, oils, solvents; have low degree of swell

Problem: Lining of the sour gas treating tank in a large midwestern oil company was not able to "take it". It deteriorated a short time after it was applied.

Solution: Sheets of saran rubber are now being used as tank lining. These are applied to inside of the vessel by a special adhesive.

Saran rubber consists of a base polymer containing mostly vinylidene chloride and a small amount of acrylonitrile

For more information on product at right, specify CP 7033 ... see information request blank between pages 2-3.

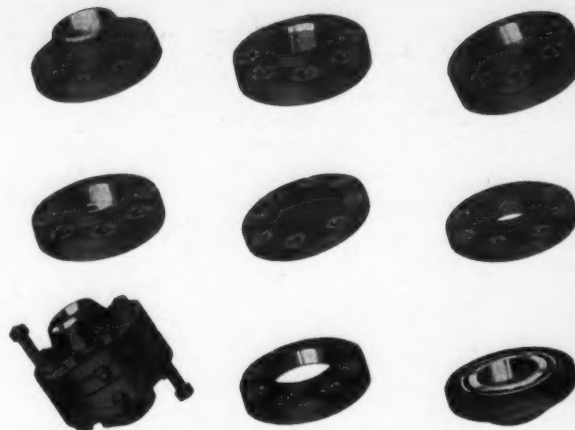


SEAMLESS WELDING FITTINGS

1/2-inch through 36 inches
Standard through Double Extra Strong

FORGED STEEL FITTINGS

Screwed and Socket Welding
1/8-inch through 4 inches
2000 lbs. through 6000 lbs. pressure



FORGED STEEL FLANGES

1/2-inch through 30 inches
150 lbs. through 2500 lbs. pressure

LONG WELDING NECKS

1-inch through 24 inches

LARGE O.D. FLANGES

26 inches through 96 inches



Ladish...one place to get them all

Whatever the piping job... Ladish is prepared to supply your fittings needs. Here is the one line that offers them all... Seamless Welding Fittings, Forged Steel Flanges, Forged Steel Fittings, Large O.D. Flanges and Long Welding Necks... in an unrestricted selection of types, sizes, weights, pressure ratings and materials. Standardizing on this complete line not only simplifies procurement but also assures you of added dependability by protecting every joint of the system through use of Ladish Controlled Quality Fittings.

Available in
**CARBON
ALLOY
STAINLESS STEELS
ALUMINUM
COPPER
and OTHER
NON-FERROUS
METALS**

A COMPLETE LINE PRODUCED UNDER ONE ROOF
... ONE RESPONSIBILITY



LADISH CO.

CUDAHY, WISCONSIN

MILWAUKEE SUBURB

DISTRICT OFFICES: New York • Buffalo • Pittsburgh • Philadelphia • Cleveland
Chicago • St. Paul • St. Louis • Atlanta • Houston • Los Angeles

ASKANIA

Solves Control Problems!

COMBINES ACCURACY, SIMPLICITY,
STABILITY WITH DEPENDABILITY

STEEL

HERE...

Soaking Pit . . . Since the first Askania Control was installed for a soaking pit at one of the large steel mills, *all pits* have been equipped with duplicates of the original control. Operation proved that Askania's accuracy over wide turndown range, safety, simplicity and ease of maintenance solved the control problem! Only Askania offered the ideal combination of all these features.

GAS MIXING

and HERE...

Gas Mixing . . . An Askania Control System for gas mixing was installed in a large midwestern utility company in 1937. Proving that Askania offered the best answer to this control problem, the company has since *standardized* on Askania Gas Mixing Controls.

Efficient, automatic, trouble-free operation of Askania Controls gives this utility company the results it requires.

CHEMICAL

and HERE again...

Chlorine Pressure . . . After the first Askania Control for chlorine pressure was installed in a large chemical plant, *several more* were ordered for this plant and others belonging to the same company.

The optimum combination of accuracy, dependability, low maintenance and ability to work with small pressures solved this company's control problem.

Find out how Askania offers the right combination of accuracy, dependability, simplicity, stability and safety . . . Find out how Askania can offer the best solution to your control problem . . . Send for Bulletin 139.

ASKANIA Controls

ASKANIA REGULATOR COMPANY

A SUBSIDIARY OF GENERAL PRECISION EQUIPMENT CORPORATION

242 EAST ONTARIO ST., CHICAGO 11, ILL.

When inquiring check CP 7034 on handy form, pgs. 2-3

NEW SOLUTIONS of process

to provide a rubbery effect. This material is compounding agent, stabilizer, reinforcing agent, stabilizer, agent on regular rubber- or

After compounding, the material is used in ordinary iron molds or any type of injection or press type of mold and extruded. Can be pressure-cured or water-cured. Water-cured for linings.

The vulcanized elastomer extruded to chemicals, oils and solvents and a low rate of permeation. In general, the material is resistant to aliphatic hydrocarbons, chlorinated alcohols, and most inorganic acids. It is recommended for ethers, high-boiling compounds and amino compounds.

Since the base of the elastomer is monomer, oxygen and oxidizing agents on it. Use of the sheet at temperatures not recommended because in this temperature, and chemical changes happen. The stock is brittle.

Physical properties of compounds

Tensile strength, psi
% Elongation
% Permanent set
Hardness, Durometer A
Elasticity, Shore
Specific gravity
Compression set, constant deflection
Tear-resistance, lbs/in
Abrasion-resistance
Electrical properties
Flammability

Standard tank lining material. Thicker stock is sheeted as supplied for tank lining, etc.

Results: Lining has been in use a year, and it looks as good as new.

Saran rubber finds other uses in flooring, gaskets, valve diaphragms for glass-lined pipe, structural joints, engine supports, brake linings, steel pipe has come into use recently.

Source: Development of new materials, Dept. CP, Midland, Michigan. Check CP 7035 on handy form.

Rubber-lines, -coats piping

Rubber-lined pipe for corrosive liquids is the feature of 2-color bulletin. The part has too intricate a shape to be made by regular painting. Bulletin also includes photos, specifications for lined valves (1/2 to 14" sizes). Bulletin No. 6907, issued by Manhattan Rubber Division, New York. When inquiring specify CP 7032 and 3.

S of processing problems

very effect and to facilitate vulcaniza-
 al is compounded with plasticizer, re-
 stabilizer, accelerator and vulcanizing
 rubber- or plastic-working machinery.
 ng, the material can be molded in or-
 or any type of metal mold, using the
 type of molding. It can be calendered
 an be press-cured, steam-cured, oven-
 red. Water-curing is common practice

customer exhibits a very good resistance
 and solvents, has a low degree of swell
 f permeation to hydrocarbon solvents.
 material is recommended for use with
 bons, chlorinated hydrocarbons, lower
 st inorganic reagents with the excep-
 concentrated acids and bases. It is not
 ethers, higher alcohols, ketones, cyclic
 amino compounds.

the elastomer is a highly chlorinated
 and oxidizing agents have little effect
 sheet at temperatures above 167° F is
 because internal decomposition starts
 e, and chemical-resistance drops when
 the stock also hardens and becomes

s of compounded and cured stock are:

psi	2000-2500
	300-350
	2-4
cter A	50-57
	55-64
	1.45-1.55
constant deflection	10-30%
s/in	150-400
e	Excellent
es	Fair
	Will not burn

g material is 3/16 x 45 x 48" sheet.
 sheeted as required. Finished sheets,
 k lining, contain the curing agent.

g has been in service for more than
 ks as good as on the day of applica-

other uses. It is being employed as
 valve diaphragms, stoppers and gas-
 l pipe, stripping for doors and win-
 orts, brake diaphragms. Saran-lined
 into use recently.

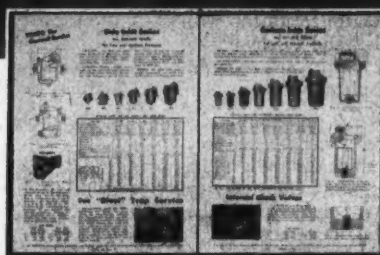
pmment of The Dow Chemical Com-
 idland, Mich. . . or for more infor-
 7035 on handy form, pages 2 and 3.

ats

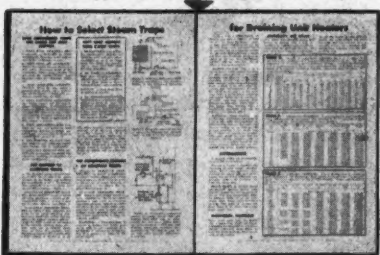
for corrosive and abrasive service is
 or bulletin. Manufacturer states no
 te a shape for his rubber-lining skill.
 ds covering pipe with rubber when
 o corrosion, and are inaccessible for
 Bulletin also covers line of rubber-
 14" sizes), and flexible rubber pipe.
 specifications, features, descriptions.
 issued by Raybestos-Manhattan, Inc.,
 Division, Dept. CP, Passaic, N. J.
 ecify CP 7036 on handy form, pages

"You can engineer any trapping job with this book"

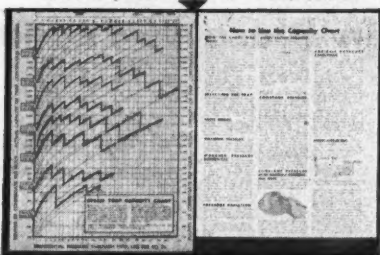
YOU CAN'T GO WRONG



Physical data and prices on all sizes
 and types of Armstrong steam traps.



How to calculate condensate loads and
 select traps for all classes of equipment.



Actual hot condensate capacity chart
 for every Armstrong trap, recommended
 safety factors and specific recommenda-
 tions for many types of equipment.



ARMSTRONG STEAM TRAPS

When inquiring check CP 7037 on handy form, pgs. 2-3

THERE is no guess work about steam traps
 or steam trap selection when you have
 the 36-page Armstrong Steam Trap Book to
 work with. You don't waste money on traps
 that are too big for the job. You don't get
 inefficient drainage with traps that are too
 small.

This book explains the design, operation
 and advantages of Armstrong steam traps,
 specifies materials used, gives complete dimen-
 sional data, includes list prices, actual capaci-
 ties under working conditions. There are 10
 pages of tabular and technical data explaining
 how to calculate condensate loads and select
 the correct trap for the job, complete instruc-
 tions on installation and maintenance. The
 Steam Trap Book also describes Armstrong
 traps for draining moisture from compressed
 air systems, Armstrong steam humidifiers for
 adding moisture to dry air and Armstrong
 non-condensable gas purgers for removing air
 from refrigeration systems.

Anyone is welcome to a copy of this useful
 guide to good trapping practice. Send for
 yours today.

ARMSTRONG MACHINE WORKS
 880 Maple St., Three Rivers, Mich.

Trial Lots of Beta-substituted Propionitriles Foster Chemists' Investigations Into Applications

USES: Synthesis of pharmaceuticals, dyes, insecticides and resinous materials.

Features: All four compounds possess excellent solvent properties. They are miscible with all common organic solvents (methoxypropionitrile is completely miscible with petroleum ether only on warming). The alkylamino compounds are miscible with water; the alkoxy compounds are only slightly soluble. Stable at temperatures as high as boiling point.

These beta-substituted propionitriles are available in trial-lot quantities for evaluation by industry.

Description: At present, the methoxy-, isopropoxy-, dimethylamino- and isopropylaminopropionitriles are being prepared. All undergo most of the reactions characteristic of nitriles: hydrolysis, reduction, esterification and condensation. Physical properties are summarized in accompanying table. The alkoxypropionitriles are slowly decomposed by alkali.

Reactions common to alkylamino- and alkoxypropionitriles

Both groups are readily hydrolyzed to the corresponding propionic acids in presence of mineral acids. They may be reduced to the corresponding amines by chemical reduction with sodium and an alcohol, or by catalytic hydrogenation. As expected, condensation with esters takes place at the active methylene group, alpha to the nitrile. Ethoxypropionitrile has been converted to diallyl (2-ethoxyethyl) carbinamine by reaction with allyl magnesium bromide.

When dialkylamino- or alkoxypropionitriles are refluxed with absolute ethanol, the theoretical amount of water and either dry HCl or sulfuric acid, esterification takes place.

Reactions peculiar to alkylaminopropionitriles

One respect in which alkoxypropionitriles and alkylaminopropionitriles differ is the basicity of the latter. Since they are amines, these compounds will form typical amine salts such as the hydrochloride, sulfate, styphnate, picrate and methiodide.

Phenylurea derivatives of monoalkylaminopropionitriles are made by treating the nitriles with phenyl isocyanate. Monoalkylaminopropionitriles may be added across the double bond of acrylonitrile.

Acylation agents such as acetic anhydride, benzenesulfonyl chloride or ethyl chloroformate may be used to acylate monoalkylaminopropionitriles in the manner common to secondary amines.

Reactions peculiar to alkoxypropionitriles

Beta-alkoxypropionitriles react with aqueous ammonia at 200°C in a closed vessel to yield beta-alanine. Similarly, amines may be used to replace the alkoxy group at 200°C in an inert atmosphere.

Alkylamino- and alkoxypropionitriles offer possibilities in synthesis of resins, dyes, pharmaceuticals, insecticides, plasticizers

Alkoxypropionitriles are reported to be converted to acrylates by treatment with alcohols and dehydrating agents, particularly concentrated sulfuric acid.

The alkoxy compounds dissolve polyvinyl acetate, polyvinyl chloride, polymethacrylates, vinyl chloride-vinyl acetate copolymers and other polymeric materials.

Source: Made by American Cyanamid Company, Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. . . . or for more information check CP 7038 on handy form, pages 2 and 3.

PHYSICAL PROPERTIES OF BETA-SUBSTITUTED PROPIONITRILES

	Dimethylamino-propionitrile	Methoxy-propionitrile	Isopropylamino-propionitrile	Isopropoxy-propionitrile
Melting Point, °C	-44.2	-62.9	less than -20	less than -67
Boiling Point, °C	172	160	86-87*	177
pH of 1% Aq. Sol'n.	9.7	5.4	10	—
Density, 30°C	0.8617	0.9299	0.864 (25°C)	0.883 (25°C)
Flash Point, °F	147*	149**	less than 105***	less than 105**
Viscosity, cp, 30°C	1.1558	0.9857	—	—
Heat of Vaporization, kcal/mole	11	11.5	—	—

*At 17 mm Hg

**Tagliabue closed cup method

***Open cup method

Many Processes Can Use Low-cost Plasticizer in Place of Expensive, More Efficient One

Polyester-type compound exhibits high resistance to heat, light, weather, oil, water, plus improved non-migrating properties

USES: As a plasticizer for ethyl and nitrocellulose lacquers, where it may be used as the only plasticizer. In conjunction with a high-efficiency plasticizer such as dioctyl phthalate, material is recommended for plasticizing polyvinyl chloride and chlorinated, natural and synthetic rubbers.

Features: Similar to manufacturer's high-efficiency G-E 2557 plasticizer but lower in cost. Has very good heat, light and weather resistance, improved oil and water resistance and better non-migrating characteristics.

Description: New polyester-type plasticizer, G-E 2559, is higher in viscosity, darker in color and less efficient than its near-relative, G-E 2557. However, it is said to be completely satisfactory for many applications.

In vinyl compounds, extrusion characteristics are excellent. Usually, states the company, it speeds production and improves product appearance. Material wets pigments and fillers readily and can be used as a dispersing medium. It is soluble in aromatic and chlorinated hydrocarbons, ketones and esters; insoluble in aliphatic hydrocarbons.

Following is table of properties:

Specific Gravity	1.07
Pounds/Gallon	8.9
Non-volatile Content	100%
Viscosity (G-H)	Z ₂ -Z ₃
Color (Gardner)	12 max
Acid Number	5 max
Congeeing Point (approx)	Minus 25C

Plasticized vinyl samples held for 150 hours in conventional Atlas Weatherometer show the slight bleeding common to all polymeric and many monomeric plasticizers. However, there is no evidence of breakdown after this 150-hr period. After 4-hr immersion in SAE 20 oil at 70C, plasticized polyvinyl chloride sheet shows less than 5% loss in tensile strength and elongation.

Little modification in technique is necessary when using this plasticizer in making coatings such as lacquers, organosols and plastisols. Corrections for higher viscosity, however, must be made.

Slightly higher temperatures may be desirable when milling with polyvinyl chloride. With some polymers, plasticizer is not taken in as readily as monomeric types, and additions of the latter may help. Quicker milling is often obtained by leaving out fatty acids.

Basic lead compounds have been used successfully in stabilizing polyvinyl chloride plasticized with G-E 2559. Amounts of 3 to 5%, based on vinyl resin content, are suitable; as yet, no need for additional stabilization has been found.

Volatility of plasticizer is very low when measured alone, and fair when employed with dioctyl phthalate.

Source: Being produced by Chemicals Division, Chemical Department, General Electric Co., Dept. CP, Pittsfield, Mass. . . . or for more information check CP 7039 on handy form, pages 2 and 3.

Principles and applications of detergency

Principles of detergent action and practical applications of detergents are set forth in a comprehensive 256-page text. Chemical formulation of modern detergents is presented along with basic information concerning physical and chemical factors involved in detergency.

Subject matter covers: 1) effects of composition, concentration, temperature and added electrolytes on the nature and properties of aqueous detergent solutions; 2) fundamental actions which constitute detergency, and the role of detergents in aiding these actions; 3) means of utilizing various fundamental detergent actions in laundering, which is used as a typical application.

"The Fundamentals of Detergency," by William W. Niven, Jr. Remit \$5.50 direct to Reinhold Publishing Corporation, Dept. CP, 330 W. 42nd St., New York, N. Y. Or, when inquiring, specify CP 7040 on handy form, pages 2 and 3.

Lists 803 organic chemicals for the laboratory

Abridged catalog lists 803 organic chemicals for the laboratory. Arrangement is alphabetical; prices are listed (where applicable) for 100 and 500 gms, 1 kg, and 1 gal quantities. "Abridged Catalog of Laboratory Chemicals for 1950", issued by Smith New York Co., Inc., Dept. CP, Freeport, Long Island, N. Y. When inquiring specify CP 7041 on handy form, pages 2 and 3.

The "JM-3000" insulating fire brick is fortified with ALCOA Alumina

The new Johns-Manville "JM-3000" is a *high temperature insulating fire brick*. Fortified with pure ALCOA Alumina, it withstands a full 3000° F. in either back-up or exposed service. It provides new operating economy for *forge furnaces . . . ceramic kilns . . . chemical process furnaces . . .* and other equipment operating at temperatures above the limits of any previous insulating fire brick.

ALCOA Alumina adds stability to refractory brick at high temperatures . . . increases load-bearing strengths . . . intensifies resistance to chemical attack. It provides for longer refractory life and less costly downtime. Moreover, these performance qualities *increase* in almost direct ratio to the alumina content of each refractory!

When a refractory manufacturer adds ALCOA Alumina to his mix, he improves the quality of his product, and strengthens the confidence of his buyers. That's why you'll find more and more *leading* manufacturers using ALCOA Alumina.

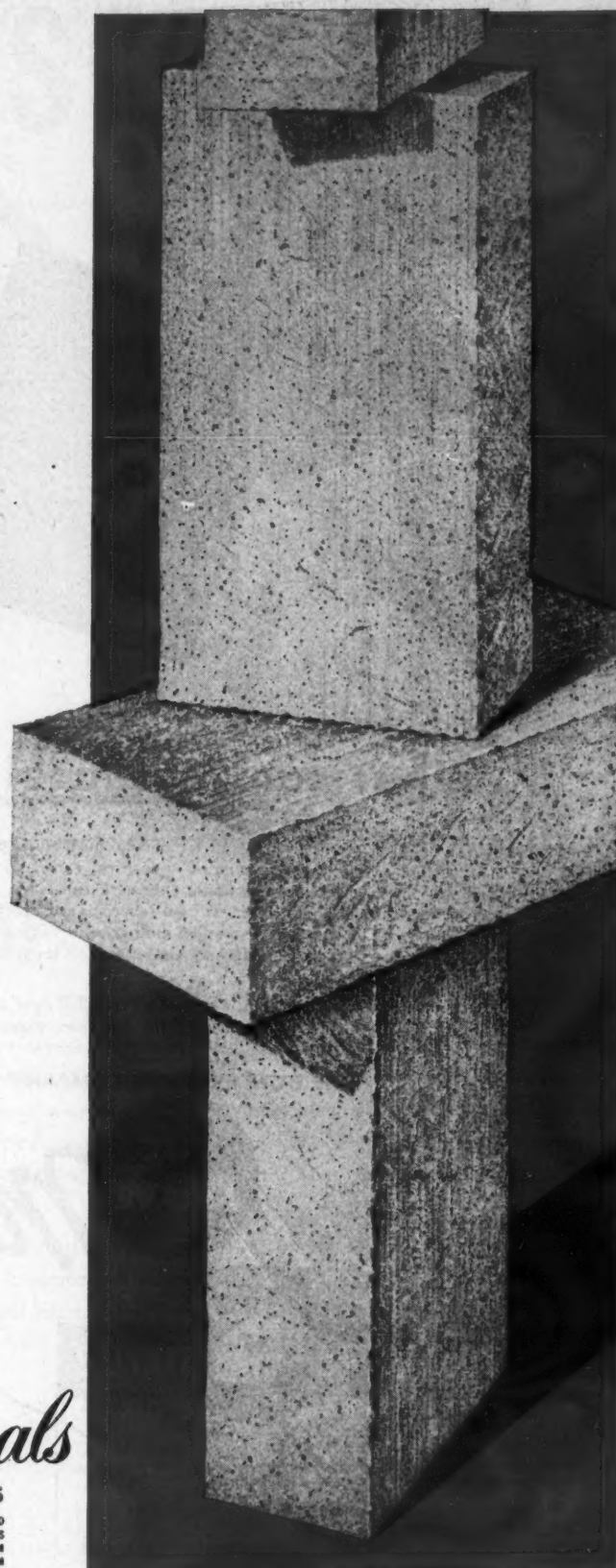
We'll gladly discuss with you the properties and characteristics of the *various grades* of ALCOA Alumina as they apply to *your* product. Write to ALUMINUM COMPANY OF AMERICA, CHEMICALS DIVISION, 606D Gulf Building, Pittsburgh 19, Pennsylvania.

Alcoa Chemicals

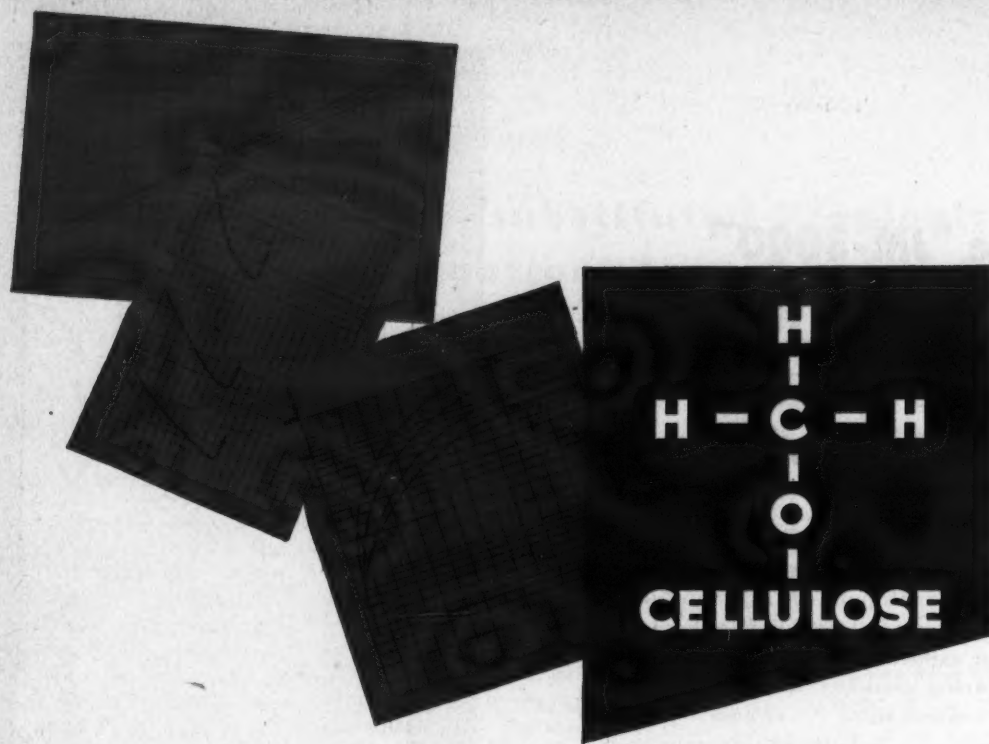


ALUMINAS and FLUORIDES

ACTIVATED ALUMINAS • CALCINED ALUMINAS • HYDRATED ALUMINAS • TABULAR ALUMINAS • LOW SODA ALUMINAS
ALUMINUM FLUORIDE • SODIUM FLUORIDE • SODIUM
ACID FLUORIDE • FLUOBORIC ACID • CRYOLITE • GALLIUM



When inquiring check CP 7042 on handy form, pgs. 2-3



What can Methocel do for you?

Methocel, a cold water-soluble cellulose ether, yields neutral solutions in a wide range of viscosities, varied to suit diversified applications. Methocel is outstanding as a thickener, suspending agent and emulsion stabilizer. It also serves as an excellent binder and film former. Countless diversified industries including rubber, paint, leather, paper, ceramics, soap and cosmetics, and the drug industry find this synthetic gum of value.

Investigate the new METHOCCEL now available in powdered form to facilitate its use. Send for free, experimental sample of the new METHOCCEL, powdered.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

THE
new

Methocel

DID YOU GET YOUR SAMPLE?



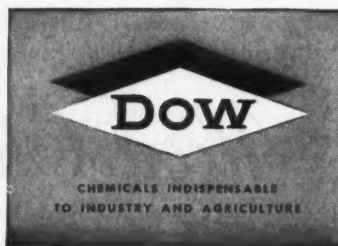
The Dow Chemical Company
Dept. Ma-397-B
Midland Michigan

Please send free sample of METHOCCEL, for use in _____
Check viscosity desired: 15, 25, 100, 400, 1500, 4000 cps.

Name and Title _____

Firm _____

Address _____



When inquiring check CP 7043 on handy form, pgs. 2-3

MATERIALS

Finishes dry in 15 minutes, are chemical resistant

Finishes that may be brushed or sprayed to a smooth, glossy, lasting single coat on wood or metal surfaces are described in a recently issued folder. They are suitable for use on plant machinery, for pipeline identification, for safety zone marking, and for application to metal parts by tumbling.

Various finishes listed include white (1 hr. dry), white (4 hr. dry) and a variety of full gloss colors such as cream, blue green, orange, yellow, red, gray, brown and aluminum. In addition, there are clear varnishes and primers.

Finishes are dry and dust free in 15 minutes and are chemical resistant.

Folder — "Hardcote Finishes" is issued by McDougall-Butler Co., Inc., Dept. CP, 6 Evans St., Buffalo 5, N. Y. When inquiring specify CP 7044 on handy form, pages 2 and 3.

Wide application as emulsifier in toxicant concentrates . . .

typical mixtures listed below indicate how material can assist the formulator

Uses: Emulsifier for concentrates of DDT, Toxaphene, Chlordane, benzene hexachloride, Methoxychlor, Aldrin, Dieldrin, 2,4-D and 2,4,5-T esters, and certain combinations of these toxicants.

Features: As indicated above, product has wide range of application in preparing emulsifiable toxicant concentrates.

Description: Free-flowing amber liquid with a mild, characteristic odor. Specific gravity 0.98 to 1.0, acid number 10 to 15, pH of 3% aqueous dispersion 3.4 to 4.0. Becomes slightly cloudy when cooled; solidifies at 50°F. Soluble in alcohols, aromatic solvents, and in kerosene solutions of Chlordane, Toxaphene and 2,4-D esters. It is insoluble in kerosene alone. Dispersible in water.

Typical DDT formulation contains 25% DDT, 70% Xylene and 5% emulsifier. Spontaneous emulsions are formed with little agitation. These emulsions are stable, slow to cream, and are only slightly affected by water hardness. Readily regenerated. Concentrate has good shelf life and remains clear for at least 72 hrs at minus 10°C.

The emulsifier should not be used in Chlordane formulations containing less than 45% of the toxicant in kerosene. Typical formulations are 73 or 75% Chlordane in 12 or 17.5% kerosene, respectively, and the rest consisting of the emulsifier. Excellent emulsions are formed in hard water. More agitation is required in very soft water, and creaming rate is higher. Shelf life is good.

In preparing emulsifiable concentrates, toxicant is first dissolved in the kerosene, and solution is stirred until clear. Then the emulsifier is added, and concentrate is again stirred until clear. The emulsifier will also give excellent emulsions without the kerosene. For example: 90% Chlordane and 10% emulsifier may be used.

A typical Methoxychlor formulation is 33.3% technical Methoxychlor (90% active material), 61.7% Velsicol AR50G and 5.0% emulsifier. This emulsifier is not

CHEMICAL PROCESSING

MATERIALS

recommended in Methoxychlor dissolved in chlorinated solvents like methylene chloride.

May be used in formulating technical benzene hexachloride (containing 36% gamma isomer) and Lindane (containing 99.6% gamma isomer). In each case, a typical formulation is 25% toxicant, 70% xylene and 5% emulsifier.

It is to be understood that the percentages of emulsifier suggested in the above typical formulations may be varied to attain greatest economy, desired stability and spontaneity, etc.

Source: Emcol H-77 is a product of The Emulsol Corporation, Dept. CP, 59 E. Madison St., Chicago 3, Ill. . . . or for more information check CP 7045 on handy form, pages 2 and 3.

"Fills bill" where colorless, oil-soluble antioxidant is required . . .

new alkylated aromatic amine has not been previously described in literature, it is reported

Uses: Designed for use where a relatively colorless, oil-soluble antioxidant is required.

Features: Oil-soluble.

Description: Designated as Good-rite p,p' dioctyl diphenylamine, antioxidant is a new alkylated aromatic amine. Manufacturer reports that material has not been previously described in literature.

Furnished as a light buff-colored crystalline solid. Set point (minimum) is 95° C; distillation range (at 3 mm Hg) is 90% between 215-250° C. Principle impurity is mono octyl diphenylamine. Antioxidant is soluble according to the following proportions:

Solvent	Grams per 100 Grams Solvent
Carbon tetrachloride	20.83
Ethylene dichloride	17.63
Ethyl acetate	16.77
Hexane	12.21
Benzene	12.00
Acetone	9.31
Methanol	1.27
Water	.008

Source: Product of the B. F. Goodrich Chemical Company, Dept. CP, 324 Rose Bldg., Cleveland 15, O. . . . or for more information check CP 7046 on handy form, pages 2 and 3.

Comparative chart, adhesives for transparent films

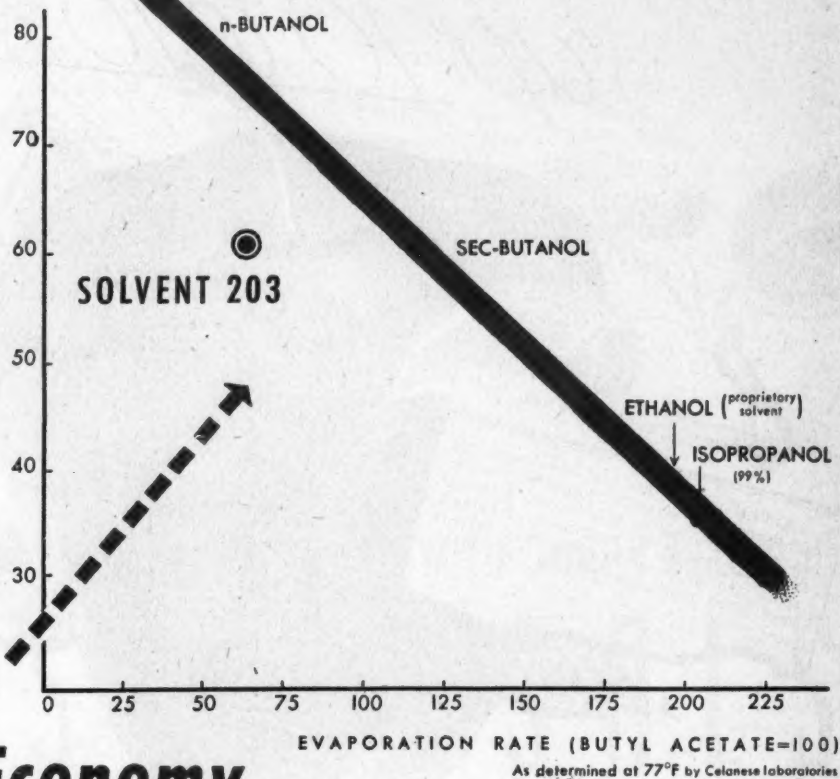
Vest-pocket booklet entitled "How to Handle Adhesives for Transparent Films" contains general information on emulsion, lacquer, and hot-melt adhesives. Covers special problems: penetration, aging, storage, inflammability. Mentions line of adhesives for transparent sheeting, can and bottle labeling, carton and case sealing, package wrapping, revenue stamping, etc.

Booklet includes very helpful comparative chart (12½ x 17½") of 14 basic types of transparent films — giving means of identification, manufacturer, trade name, gauges, types, and characteristics. Issued by National Adhesives, Dept. CP, 270 Madison Ave., New York 16, N.Y. When inquiring specify CP 7047 on handy form, pages 2 and 3.

APRIL, 1950

SOLVENTS

DELIVERED COST
PER GALLON
IN TANK CARS
(effective April 1, 1950)



**Buy Here
in the
Area of Economy...**

It is no longer necessary to pay premium prices for alcohol solvents in order to get the evaporation rate you require. Look at this chart. It shows the cost as a function of evaporation rate of five alcohols commonly used in nitro-cellulose lacquers and other applications. Inside the curve—in the area of economy—you'll find Celanese Solvent 203 (a mixture of normal butanol and isobutanol.)

This solvent can give you savings well up to 14¢ per gallon, whether used singly or as a component in your formulation. Call or write for prices and other technical information. Celanese Corporation of America, Chemical Division, Dept. 55-D, 180 Madison Avenue, New York 16, N.Y.



ACIDS • ALCOHOLS • ALDEHYDES • GLYCOLS • INTERMEDIATES • KETONES • PLASTICIZERS • SOLVENTS

When inquiring check CP 7048 on handy form, pgs. 2-3

*Reg. U.S. Pat. Off.

*Apple production
"up" 10 to 15%!*



OTHER "PITTSBURGH" CHEMICALS

Alkyl Methyl Pyridinium Chloride
Alphanitronaphthalene
Benzol—Motor, Nitration, Pure
Crescote
Cresol—Meta Para, Ortho
Naphtha, Heavy Solvent
Naphthalene—74° and 78°
Para Amino Phenyl Mercuric Acetate
Phenol
Hydrochloric Acid—20° and 22°
Picoline—Alpha, Beta and Gamma
Pyridine—Medicinal and Industrial
Sodium Cyanide
Sodium Thiocyanate
Sulphate of Ammonia
Sulphuric Acid—60°, 66° and Oleum
Tar Acid Oil Disinfectants
Tar—Crude and Rood
Telcel—Nitration and Commercial
Xylol—10°, 5° and 3°
2,4 Dichlorophenol



Pittsburgh Parathion helps do this job!

The bumper crop and fine quality of fruit from the great apple belts last year was due in part to the first really widespread use of Parathion. For this most potent insecticidal chemical yet developed not only destroys the European red mite and other arachnids but appears to be an effective control for a wider range of orchard insect pests than many previously used compounds.

Pittsburgh Agricultural Chemical Company, a division of Pittsburgh Coke & Chemical Company, is a basic producer of Parathion and offers Pittsburgh 15% and 25% Parathion Wettable Powders, chemically and biologically standardized.

Now is the time to assure your season's supply of this orchard-proved control chemical. For technical assistance and recommendations, write today.

PITTSBURGH AGRICULTURAL CHEMICAL COMPANY
Empire State Building • 350 Fifth Avenue • New York 1, New York

Affiliated with

PITTSBURGH COKE & CHEMICAL COMPANY
1953 Grant Building • Pittsburgh 19, Pa.

COAL CHEMICALS, ACTIVATED CARBON, NEVILLE COKE, EMERALD COAL, FIG IRON, GREEN BAG CEMENT, CONCRETE PIPE AND PRODUCTS

When inquiring check CP 7049 on handy form, pgs. 2-3

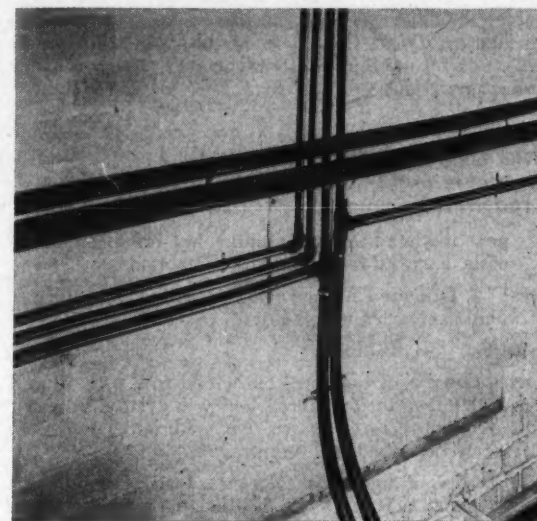
MATERIALS

Flexibility, light weight of plastic pipe cut installation costs . . .

number of fittings are less, since corrosion-resistant pipe can be bent easily

Uses: Transmission of fluids, sewage, fumes, dust, etc.

Features: Light-weight pipe is an insulator and will not form galvanic couples. Very high resistance against rot, rust and electrolytic corrosion. Since the pipe is flexible, it can be curved, thereby eliminating many fit-



Note how plastic pipe may be connected by fittings or may be bent in installation

tings. Has enough elasticity to expand sufficiently to prevent bursting when water freezes inside.

Description: Carlon plastic pipe has tensile strength of 1400 psi and flexural strength up to 1700 psi. It is practically unbreakable. Impact strength at temperatures of minus 50 to 140°F is similar to that of soft rubber.

Available in standard pipe sizes of 1/2 to 6". The first has estimated bursting pressure of 540 lbs and weighs 0.103 lbs per ft. The last has bursting pressure of 115 lbs and weighs 2.230 lbs per ft. Fittings with stainless steel clamps are available for all these sizes. Special metal and plastic fittings can be provided if desired.

Source: Carter Products Corporation, Dept. CP, 10195 Meech Ave., Cleveland 5, Ohio, is the maker . . . or for more information check CP 7050 on handy form, pages 2 and 3.

Turn to Page 6

for an announcement of interest to

- Engineers
- Technicians
- Chemists
- Lab Workers

— and Other Readers of This Magazine

MATERIALS

Rust preventive passes severe tests of humidity change and salt spray . . .

water-displacing compound's film can be removed by petroleum naphtha a year after application

Uses: Acts as rust inhibitor on black-oxidized, phosphated and untreated metal surfaces.

Features: Any water on the metallic surfaces or in crevices is displaced by protective film during treatment.

Passes 30-day condensation tests in which 2" cubes of polished steel are subjected to alternating conditions of high and low temperature and humidity. Also passes the standard 30-day humidity cabinet test, and the 30-hr salt-spray test.

Description: Applied by cold dip or spray, Sealbrite forms a dry, waxy-feeling film which can be easily removed by petroleum naphthas, even after a year. Its fingerprint-neutralizing qualities eliminate need for re-processing and prevent rusting under the film.

Source: Development of London Chemical Company, Dept. CP, 607 S. Dearborn St., Chicago 5, Ill. . . or for more information check CP 7051 on handy form, pages 2 and 3.

New type glass pipe embodies heat-strengthening and close tolerances . . .

is interchangeable with present piping; retains all properties; no increase in price

Uses: May be employed interchangeably with manufacturer's glass piping supplied to date.

Features: Piping, in addition to possessing all qualities of present product — visibility, corrosion resistance, non-contamination and ease of cleaning — has following added features: heat strengthening of all standard fittings (except U-bends) and ends of all straight lengths; and 50% closer tolerance on length, flatness, angularity, and bow. Manufacturer reports new type is available at no increase in price.

Description: New type is known as Pyrex Brand Double Tough glass pipe.

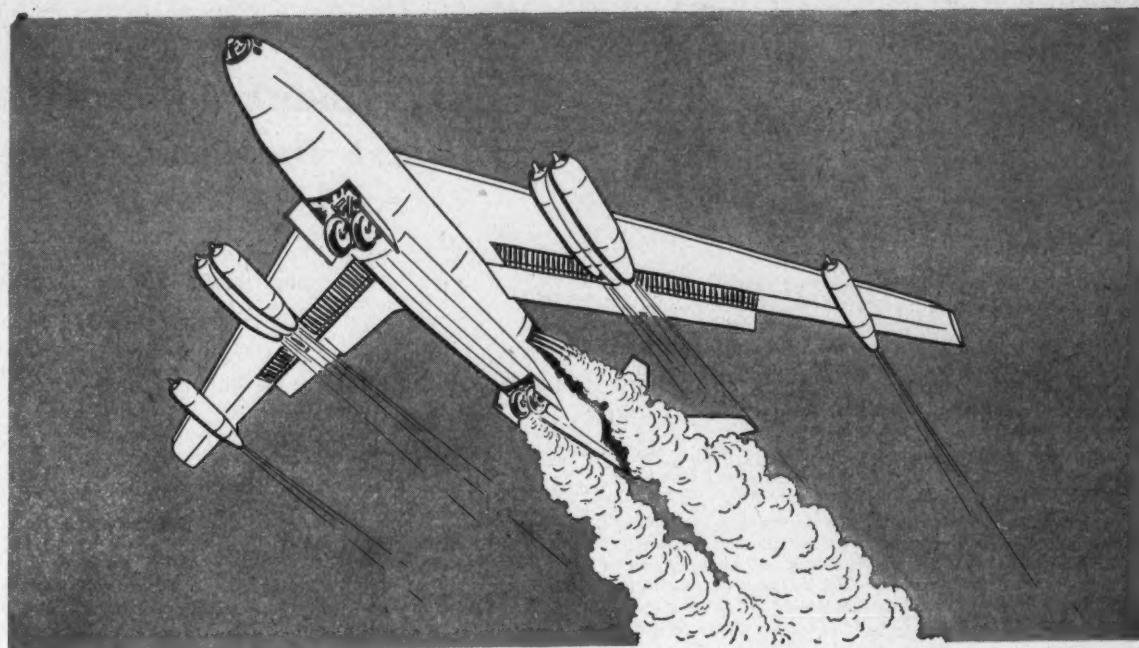
Source: Product of the Corning Glass Works, Dept. CP, Corning, N. Y. . . or for more information check CP 7052 on handy form, pages 2 and 3.

Acid-proof pipe, linings — two bulletins

Furan resin reinforced with fiber glass cloth is the material used for pipe and fume ducts which resist acids, alkalis, organic solvents, grease, oil, water, and temps to 260°F. Bulletin No. 1E describes material's physical properties and chemical resistance; specifies pipe, fume duct, and flanges for pipe. Includes illustrations.

A thermoplastic sheet lining for covering or lining steel or concrete equipment (autoclaves, boilers, pickling tanks, sumps, etc.) exposed to corrosion is described in Bulletin No. 2E. Specifies construction, operating conditions, equipment, and time-in-service for typical lining installations. Contains illustrations; treats application and construction.

Issued by Maurice A. Knight Co., Dept. CP, Kelly Ave., Akron 9, O. When inquiring specify CP 7053 on handy form, pages 2 and 3.



in tune . . . in every way . . . with today's tempo

RCI STYRESOLS

(STYRENATED ALKYD RESINS)

No. 4250 Styresol (short oil) and No. 4400 Styresol (medium oil), the RCI resins which were first to unite alkyd and styrene properties, approximate the drying speed of nitrocellulose lacquers . . . bake faster than any straight alkyd . . . offer a high degree of resistance to alkalis, acids and water . . . and confer durability equal to that of the most expensive

alkyds. On the market for only a little more than a year, RCI Styresols are already being extensively used in white gloss enamels, paper coatings, toy and implement enamels, primers, low bake furniture finishes and a wide range of other applications. Write the Sales Department at Detroit for samples, complete specifications and formulating suggestions.

For a good start toward a fine finish, use RCI resins and colors.

REICHOLD CHEMICALS, INC.

General Offices and Main Plant, Detroit 20, Michigan



Other Plants: Brooklyn, New York • Elisabeth, New Jersey • South San Francisco, California • Seattle, Washington • Tuscaloosa, Alabama • Liverpool, England • Paris, France • Sydney, Australia • Sassenheim, Holland • Milan, Italy • Buenos Aires, Argentina • Toronto, Canada

SYNTHETIC RESINS • CHEMICAL COLORS • PHENOLIC PLASTICS • INDUSTRIAL CHEMICALS

When inquiring check CP 7054 on handy form, pgs. 2-3

Can **CARBON DIOXIDE** solve one of your processing problems?

Each year industry is finding more applications for carbon dioxide. Some of these involve its use as an inert gas in processing paints, lacquers, resins, plastics, drugs and foods—it's the same gas that puts the "life" in soft drinks and is "death" to fires. Used in solid form ("DRY-ICE") carbon dioxide makes an ideal in-transit refrigerant as well as a cooling agent for shrink fitting and other industrial applications.

For the user of carbon dioxide, Pure Carbonic has developed the Carboflex CO₂ Supply System which insures a gas supply in any required quantity.

A handy directory listing the points that make up the nation-wide Pure Carbonic distribution network is available. If you would like a copy, or, if you desire the help of a Technical Sales Service man in the solution of a problem involving the use of carbon dioxide, please write to Dept. CP1859 at the address below.

PURE CARBONIC COMPANY

A Division of Air Reduction Company, Incorporated

GENERAL OFFICES: 60 EAST 42nd STREET, NEW YORK 17, N. Y.
Nation-wide CO₂ Service—Distributing Stations in Principal Cities

When inquiring check CP 7055 on handy form, pgs. 2-3

Skin Irritations



You can't expect top production efficiency when skin irritations plague your plant workers—causing absenteeism and slow-downs. TARBONIS has a long record in hundreds of plants for overcoming and guarding against the recurrence of skin irritations.

COMMON

- SKIN IRRITANTS
- Cutting Oils
- Chrome Dyes
- Sodium Bichromates
- Lime
- Metal Dust
- Urea and Phenol
- Plastic Compounds
- Naphtha
- Detergents

THE TARBONIS COMPANY, Dept. CPP
4300 Euclid Ave., Cleveland 3, Ohio

Please send me a sample of TARBONIS

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

BY _____ DEPT _____

When inquiring check CP 7056 on handy form, pgs. 2-3

Government Approves Non-toxic Plasticizer for Use in Meat-packaging Films

Reaches decision after studying results of 3 years of testing; application in films for other foodstuffs is stressed

USES: As a plasticizer for films used in packaging frozen meats, poultry, processed meats, lard, oleomargarine, butter, fish, candy, cakes, fresh and dried fruits and condiments.

Also suggested as plasticizer for beverage tubing, anatomical restorations, baby pants, hospital sheeting, surgical coverings and tapes, dress shields, blood plasma tubing and drum lacquers.

Features: Accepted by the Meat Inspection Division of the Bureau of Animal Industry, Department of Agriculture, as a non-toxic plasticizer for use in plastic products which may come in contact with, or be associated with, meat or meat products during processing, storage or packaging. Reported to be the first monomeric plasticizer to meet these requirements.

Description: Acceptance was announced after the results of more than 3 years of testing were studied by the BAI. These tests established the non-toxicity of the plasticizer, as well as the fact that it is not irritating to the skin.

The degree of extraction by food was included in the test program. Films of polyvinyl chloride containing 30% by weight plasticizer were used to wrap various foodstuffs such as pork chops, bacon, chicken and lard. Similar films were exposed to distilled water and 1% solutions of lactic acid, sodium bicarbonate and salt.

After 4 weeks of exposure at 34°F, the maximum amount of plasticizer extracted in any case was much less than the minimum amount fed to animals in toxicity tests. Runs at 70°F gave similar results.

Santicizer 141 has been in commercial production for 2 years and is particularly well adapted for use in polyvinyl chloride and its copolymers. It imparts excellent low-temperature flexibility and improves processing characteristics of most formulations. It is flame-resistant and non-volatile, and provides very good light-stability in polyvinyl chloride compositions.

Source: Monsanto Chemical Company, Dept. CP, St. Louis 4, Mo. . . or for more information check CP 7057 on handy form, pages 2 and 3.

Fastenings of corrosion-resistant steel now being made . . .

Carpenter No. 20 has excellent resistance to sulfuric and phosphoric acids, plating solutions

Uses: Corrosion-resistant fastenings for use in manufacture of chemicals, petroleum products, explosives, pharmaceuticals, etc.

Features: Steel has very good resistance to sulfuric acid, phosphoric acid, fluoborate plating solutions and many other corrosives.

Description: Many types of fastenings (screws, bolts, nuts, nails, etc.) are being made by other companies from Carpenter Stainless No. 20 bars and wire.

Four service reports are presented below to give the reader an idea of what this steel will do:

- 1) It was rated 8 times as resistant as Type 316 when used in a recirculating acid pump tank containing 75% aerated phosphoric acid.
- 2) Has been recommended for use with any commercial fluoborate plating solution employed in electroplating copper, zinc, etc.
- 3) In a pickling tank containing 10% aerated solution of sulfuric acid at 165°F, the steel is reported to offer considerable economic advantage over alloys previously used.
- 4) Another report comes from a dye manufacturing plant where the steel is employed in heat exchanger

coils. These coils handle 1 to 105% sulfuric acid and are said to be approximately 8 times as resistant as lead coils. Expected life of equipment is 4 years.

Source: Steel from which the new fastenings are made is a product of The Carpenter Steel Company, Dept. CP, Reading, Pa. . . or for more information check CP 7058 on handy form, pages 2 and 3.

Chlorine user's handbook has enthalpy-temp diagram

Chemical and metallurgical engineers, works managers, superintendents and executives responsible for storing, handling and using chlorine will be interested in this 44-page indexed technical manual. "Chlorine Handbook" is in 2 sections, as follows:

Section I describes and illustrates 3 approved, standard-size cylindrical containers used to package manufacturer's liquid chlorine for rail or truck shipment. It includes "how-to" data on proper chlorine service tools and equipment, shows typical installations and describes first aid measures, gas masks and emergencies.

Section II reviews major physical properties of chlorine. Discussion is supplemented by 8 charts and tables covering its enthalpy-temperature, vapor pressure, density, specific volume, solubility and viscosity. Issued by Diamond Alkali Company, Dept. CP, 300 Union Commerce Bldg., Cleveland 14, Ohio. When inquiring specify CP 7059 on handy form, pages 2 and 3.

ANTARA SURFACTANTS

(... one of them may
make your products
easier to sell)

A Surfactant is a surface-active agent—an Antara Product—made by General Aniline & Film Corporation. Antara Surfactants are important ingredients in some of the most spectacular, new products on the market today. They help these products to act more quickly—more thoroughly—for a longer period of time.

In broadest terms, Antara Surfactants are detergents, emulsifiers, dispersants and wetting agents. They are used in products as widely different as cleansers for the home, cleansers for industry and institutions, cosmetics, insecticides, metal cleaning, inks, paints, varnishes, waxes and polishes. They serve special purposes in the rayon, petroleum and rubber fields; they are applicable to at least thirty additional industries.

Antara Surfactants are the new serv-

ants of Commerce, Industry and Home.

Extensive research staffs and facilities support the development and application of Antara Surfactants—available to work with you in the improvement of an existing product or the development of a new one. Your inquiry is invited—without obligation. It will bring a prompt opinion as to whether one of the Antara Surfactants may be adaptable to your needs. Kindly address your inquiry to Department 18.

ANTARA PRODUCTS

SURFACTANTS . . . CARBONYL IRON POWDERS

GENERAL
ANILINE & FILM CORPORATION

444 MADISON AVENUE • NEW YORK 22, NEW YORK

© 1950 General Aniline & Film Corporation

When inquiring check CP 7060 on handy form, pgs. 2-3

MATERIALS

Primes all metals without special surface treatment . . .

may be applied by spraying, dipping, or brushing; can be air-dried or baked

Uses: Recommended both as an air-drying and a baking primer for all metals — including aluminum alloys, magnesium alloys, monel, tin, steel, brass, stainless steel, copper, and galvanized metals.

Features: Primer air-dries rapidly; requires only short baking. May be applied either by spraying, dipping, or brushing. Exhibits good adhesion, flexibility, and solvent resistance; has good resistance to salt water, chemicals, and weather. Reduced primer may be kept overnight.

Tests show primer has greater adhesion to untreated metals than do conventional primers on etched surfaces. De-greasing is only requirement.

Description: For all methods of application, 1 part Unichrome Primer A.P. Number 10 is reduced with 1 part solvent. In spraying, a wet film 1/2 mil (minimum) thick is essential for proper and economical application. For dipping, above-mentioned reduction will yield a 1/2-mil film thickness. Brush application facilitates touch-up work in field.

Five minutes of air-drying give a dust-free surface suitable for over-coating with synthetics in 1 hr. Primer requires approx. 2 hrs air-drying for over-coating with lacquers. After primer has air-dried 20 min, it may be over-coated with baking-synthetics and the entire system baked at desired temps.

Air-drying primer alone for 5 min and subsequently baking at temps maintained at 300° F for 10 min, or 325° F for 5 min, is standard procedure. Baking schedules at temps of 300° and above are necessary for maximum solvent and chemical resistance; heavy castings should have extended baking cycle to allow them to reach oven temps. White and pastel over-coatings should not be baked in conjunction with primer unless primer has first been baked at temps 25° higher than temp required by finishing coat. Baked films have been shown to be superior to air-dried films.

Source: United Chromium Inc., Dept. CP, 51 East 42nd St., New York, N. Y. . . or for more information check CP 7061 on handy form, pages 2 and 3.

Two materials give temporary protection to finished and unfinished parts . . .

one applied by spray, the other by dip in hot-melt; both are readily removed by peeling

Uses: Strippable coating SP-14 is designed for temporary protection of enameled, lacquered and plastic surfaces.

Dip-Pak No. 532 is a hot-melt coating that provides temporary protection on tools, gears, machined components and other metallic parts.

Features: SP-14 film is non-inflammable, elastic, tough, abrasion-resistant and strongly adherent, yet it can be removed by a steady pull when desired. Will not affect color of finish, constitutes no fire hazard, introduces no toxic conditions in spraying and requires no expensive solvents to clean spray gun after use.

Dip-Pak No. 532 provides pale, transparent, tough



WOOD, used in construction of this Italian Pergola in world-famous Missouri Botanical Gardens in St. Louis, was treated with a formulation of Monsanto's PENTA-chlorophenol to give it longer life. Wood,

including redwood, Douglas fir and cypress, was treated to prevent attack by fungi and insects. And, in this example of Italian art, treated wood had to be paintable.

Look into this New Monsanto Product

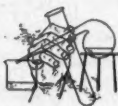


Here's a new Monsanto product that may be of use to industry. It is phosphorous acid . . . H_3PO_3 . . . a mild reducing agent. It is a stable, water-white, 70% water solution suitable for the manufacture of a variety of phosphate salts. It is available for immediate shipment in 13-gallon carboys. Send for Monsanto Technical Bulletin No. P-32 and see if this product fits into your production or research picture. The coupon is for your convenience.

How to cut costs without cutting quality of vinyls

The use of Monsanto's HB-40 (partially hydrogenated terphenyl) as an extender plasticizer is a means of cutting costs while maintaining quality. HB-40, extremely low in cost, can be used to replace as much as 50% of the primary plasticizer, based on weight.

HB-40 is practically water-white for use in transparent or bright-colored products. It is low in toxicity, gives a dry "hand," increased tensile strength, has excellent electrical characteristics and high resistance to moisture. Mail the coupon for details.

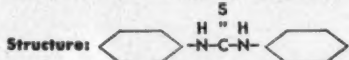


Research Chemists' Corner

You may find something new here

Chemists who are looking for ways to improve products or develop new ones, may profit from studying the specifications of Monsanto's thiocarbonyl (diphenyl thiourea) given below. Research in the application of this product is far from exhausted. If you'd like to test thiocarbonyl for its possibilities in your projects, we'll be pleased to send you a sample without cost and without obligating you in any way. Just indicate your wishes on the coupon!

THIOCARBONYL (Diphenyl Thiourea)



Molature: 0.5% maximum (test must avoid decomposing conditions)

Ash: 0.5% maximum

Specific Gravity: 1.32 at 25° C.

Solubility: Soluble in alcohol. Insoluble in water and many other common solvents.

Two grades are available, one a white powder melting at 148° C. minimum and the other a white-to-grey powder melting at 146° C. minimum.

Reactions: A weak organic base. Boiling with hydrochloric acid results in formation of phenyl isothiocyanate. The sulfur can be removed by PbO in alcohol solution forming carbodiphenylimide or, in the presence of ammonia, diphenylguanidine. Condensation with CS_2 and sulfur under pressure produces 2-mercaptobenzothiazole.

Monsanto Santosite is milder, more economical in semichemical pulping

Santosite* (Monsanto's sodium sulfite anhydrous, technical) is a mild pulping agent for hardwood, mixed wood, flax, hemp, and many cellulose-bearing agricultural residues.

With hardwood of high lignin content and with mixed woods, Santosite delivers a good yield of pulp having relatively long fiber. Because of its mild action, Santosite does not destroy fiber in the process of delignification. Santosite solves the special problems that hamper ordinary methods of pulping hemp and flax. It pulps straw, corn stalks and other agricultural residues to make a variety of quality products.

Santosite is safe and easy to use because it is clean, non-toxic and non-irritating to workmen. Even in small quantities, Santosite is highly efficient. Less time is required for shutdowns to clean up beaters, screens, felts and other equipment. For further details on semichemical pulping with Santosite, mail the coupon or contact the nearest Monsanto Sales Office.

OTHER MONSANTO HEAVY CHEMICALS

Basic Chrome Sulfate (Santotan*) for tanning industry

Salt Cake (Sodium Sulfate, Technical)

Sulfur Dioxide

Muriatic Acid

Nitric Acid

Sulfuric Acid

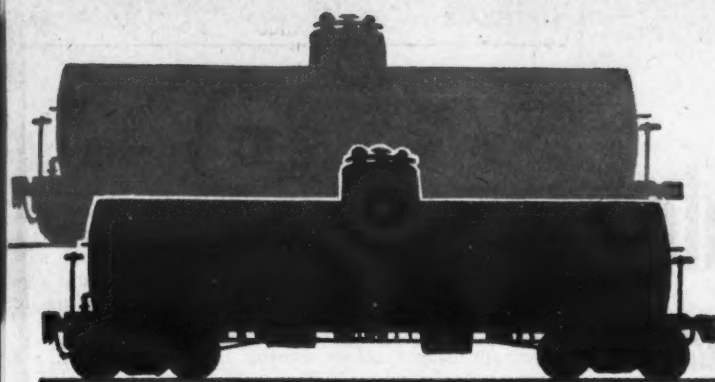
Chlorosulfonic Acid

Synergism brings higher detergency

In processes such as textile scouring, where high detergency is desirable, the synergistic action of Santomerse* No. 1 and tetrasodium pyrophosphate (TSPP) pays a bonus.

Synergism, or synergistic action, is the result of two chemicals working together to give detergency higher than the average of the two used separately . . . higher than either used alone.

If detergency is important to you, look into the possibilities of synergistic action of these two Monsanto products. For details, mail the coupon.



Liquid phthalic anhydride available in tank cars

Phthalic anhydride, usually reduced to dry flakes for handling, shipping and storage and changed back to liquid form for processing, is going directly to some Monsanto phthalic users in liquid form.

The liquid phthalic is slightly less expensive due to manufacturing economies. Further savings are effected by users because of reduced handling. Color and quality of the material are unaffected. There is some indication that the clim-

ination of flaking results in a product of improved quality.

Monsanto, with more than 15 years' experience handling and storing liquid phthalic, offers technical information on liquid phthalic handling and storage to firms using this product in appropriate quantities.

At present Monsanto liquid phthalic anhydride is available generally only in tank-car quantities. Shipments are being made to some localities in tank-trucks.

Shoes can turn water but still "breathe"

Men who work outdoors, sportsmen and others who find it necessary to ignore the weather have the promise of good news in shoes. Monsanto's octadecyl isocyanate... $\text{CH}_3(\text{CH}_2)_{16}\text{CH}_2\text{NCO}$... makes leather water-repellent yet leaves the pores open, so shoes can "breathe." Thus, shoes can afford protection against wet weather without sacrificing comfort.

This may be good business news for you. Octadecyl isocyanate also imparts similar quality to surface coatings, paper and textiles. Perhaps it fits into your production problem. It is a valuable intermediate in hydrophobizing processes. Because of Monsanto's expanded capacity, octadecyl isocyanate is in good supply.

Mail the coupon for a copy of Technical Bulletin No. P-125 which gives you complete details.



Timely Monsanto publications, listed below, will be sent to users of chemicals on request... free and without obligation. Indicate the items you want on the coupon.

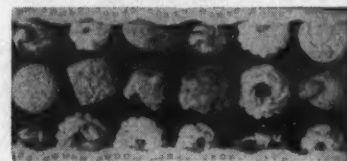
Monsanto Chlorine... 20 pages of information, including history, technical data, safe-handling suggestions.

Emulsifiers and Wetting Agents for herbicidal and insecticidal formulations. 12 pages of data on emulsifiers, wetters, solvents, formulations... procedures and equipment. (Technical Bulletin P-142.)

Handle Parathion Safely. Illustrated folder for safe handling of parathion by formulators, distributors and users.

Phosphoric Acid. 12 pages of technical data. (Technical Bulletin P-26.)

Aromatic Chemicals Improve Packages



Packages which carry candy, cookies, ice cream and other foods now give extra protection to their contents through the use of Monsanto Ethavan,* vanillin and coumarin. These aromatic Monsanto chemicals "mask" undesirable odors and tastes which some products pick up from cardboard and paper pulp, allowing products to retain their appealing flavors and aromas.

Paper makers accomplish this "masking" by adding blends of Ethavan and coumarin, or vanillin and coumarin. The chemicals are dissolved in hot water and mixed into the pulp, or flowed on, depending upon the type of paper being produced.

Something to do about mildew

With the arrival of summer's hot, humid weather comes the problem of mildew... an expensive problem in many parts of the country. It's one which laundries can solve inexpensively by using Monsanto Biolite in the rinse water before acidic scouring rinse. For further information, mail the coupon.

*Reg. U. S. Pat. Off.

MONSANTO CHEMICAL COMPANY,
1704-D South Second Street, St. Louis 4, Mo. District Sales Offices: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto (Canada) Ltd., Montreal.



MATERIALS

film that is resistant to abrasion, moisture and rust. Removed by slitting and peeling, the material is 100% solids and may be remelted and reused. Essentially non-inflammable during application.

Description: SP-14 is a light, cream-colored liquid with good stability and neutral pH. For best results, sprayed parts should be dried for about 15 minutes at 140-150°F. However, oven drying is not required if the film is allowed to air-dry for an hour and to remain on the part for at least 48 hours before peeling.

Dip-Pak No. 532 is in briquette form which is melted before application to parts. Coating sets up almost immediately upon contact with air.

Source: Both of these products are made by Fidelity Chemical Products Corporation, Dept. CP, 470 Frelinghuysen Ave., Newark 5, N. J. ... or for more information check CP 7063 on handy form, pages 2 and 3.

Makes white textiles appear whiter...

brightener's action is explained by fluorescence

Uses: Brighteners (fluorescent dyes) for inclusion in soaps, soap powders, synthetic detergents, and textile and paper finishes.

Features: Eliminate need for bluing, and decrease need for chemical bleaches — thus preventing weakening of fibers and fabrics. Makes white textiles appear whiter; improves appearance of light-colored textiles.

Description: To understand whitening as obtained through use of brighteners, an understanding of the phenomenon of fluorescence is essential. All substances absorb light, and light is energy. This absorbed energy reappears as heat, in most cases.

In case of brighteners, absorbed energy is partly thrown off in form of visible radiation. Brightened fabrics reveal this emission as visible blue fluorescence since absorption is highest in the ultra-violet region of the spectrum which activates fluorescence.

Work is being undertaken on the problem of whitening newsprint to improve readability by sharper ink and paper contrast.

Source: Brighteners are a product of the General Aniline & Film Corporation, Dept. CP, 230 Park Ave., New York 17, N. Y. ... or for more information check CP 7064 on handy form, pages 2 and 3.

Properties and applications of ion exchangers

Permutit ion exchangers, their properties and multiple uses, are summarized in a 12-page illustrated bulletin, printed in color. Literature discusses selection of the proper ion exchanger, briefly describes various cation and anion exchangers and miscellaneous adsorbents, diagrams 5 types of ion exchange processes, includes cut-away views of automatic demineralizing plant with degasifier, also the manufacturer's new automatic multi-port valve.

Applications discussed include recovery of metals from acid solution, separation of rare earths, also purification, addition and concentration uses. Five installation views are presented. Bul. 2508, issued by The Permutit Company, Dept. CP, 330 W. 42nd St., New York 18, N. Y. When inquiring specify CP 7065 on handy form, pages 2 and 3.

Send data and quotations on:

☐ Phthalic, ☐ Maleic, ☐ Santosite,
☐ Thiocarbamide, ☐ H_2PO_4 , ☐ Ethavan,
☐ Coumarin, ☐ Penta, ☐ HB-40,
☐ Biolite, ☐ Santomerse No. 1, ☐ TSPP.

Send literature as indicated:

☐ Monsanto Chlorine, ☐ Emulsifiers
and Wetters, ☐ Parathion Safety,
☐ Phosphoric Acid, ☐ Bulletin P-125,
☐ Bulletin P-32.

MONSANTO CHEMICAL COMPANY
1704-D South Second Street
St. Louis 4, Missouri

Please send, without cost or obligation, information as indicated at the left.

Name _____ Title _____

Company _____

Street _____

City _____ Zone _____ State _____

When inquiring check CP 7062 on handy form, pgs. 2-3

3

Benefits of standardizing on Hooker Sulfides

HIGH PURITY

Sodium sulfide (Fe 8 ppm Max.), Sodium Sulphydrate (Fe 5 ppm Max.), and Sodium Tetrasulfide (other Sodium Salts, 1.0% Max.) exemplify the care Hooker uses in the preparation of these products. This quality enables you to turn out uniformly excellent products at no increase in cost. There is added saving due to the fact that the clean solution of sulfide and sulphydrate can be used without settling or decanting—a worthwhile time saver—Purity Pays Dividends.

SODIUM SULFIDE Na_2S

Mol. Wt. 78.1
M. P. 100°C

Light buff colored solid in flake form. Rapidly soluble in water; slightly soluble in alcohol; insoluble in ether. Also available in solid form.

ANALYSIS

Na_2S 60 to 62%
 NaCl 1.5% Max.
Other Na Salts 2.0% Max.
Fe 8 ppm Max.
Cu, Ni, Cr, Mn, Pb 1 ppm Max.
Water of crystallization 35% Min.

USES

In manufacture of dyestuffs, chemical intermediates, paper pulp, soap and rubber, as an ingredient of dye liquor for textile dyeing; boiling out linen; ore flotation and metal refining, in unhairing hides and wool pulling; desulfurizing viscose rayon.

SHIPPING CONTAINERS

Steel drums 90 and 350 lbs. net

UNIFORM QUALITY

Dependably uniform quality cuts processing costs several ways. It is not necessary to keep a constant check on solution strength. Finished quality is uniform.

Variation in impurities can slow processing time and cause wide variations in quality and may even lead to possible rejection of the finished product. You get more than you pay for when you buy quality.

SODIUM SULPHYDRATE NaSH (sodium hydrosulfide)

Mol. Wt. 56.1
M. P. 55°C

Light lemon colored solid in flake form. Completely and rapidly soluble in water, alcohol and ether. Also available as a liquid.

ANALYSIS (Flakes)

NaSH 70 to 72%
 Na_2S 2.5% Max.
 NaCl 0.8% Max.
 Na_2SO_3 and NaHCO_3 0.4% Max.
Fe 5 ppm Max.
Cu, Ni, Cr, Mn, Pb 1 ppm Max.
Water of crystallization 28 to 26%

USES

In preparation of dyestuffs and other organic chemicals such as thioamides, thiourea, thioglycolic acid, thio- and dithio-benzoic acids, sodium thiosulfate, in unhairing hides, in desulfurizing viscose rayon.

SHIPPING CONTAINERS

Flake: Lacquer-lined steel drums 90, 350 lbs. net
Liquid Tank Cars

PROMPT SHIPMENT

Hooker's popularity as a source of sulfides is due in good measure to its painstaking efforts to meet the processing requirements of its customers. Prompt shipment from ample stocks keep customer's inventory requirements to a minimum.

Particular attention is paid to cleanliness of shipping containers to insure that no impurities mar the quality of the finished product.

Your first step to sulfide satisfaction is to write for samples and data sheets. Please make your request on your company letterhead.

SODIUM TETRASULFIDE Na_2S_4 (40% solution)

Mol. Wt. 174.23
Melting Range 3.5 to 17°C

It is a clear dark red liquid with an odor of hydrogen sulfide.

ANALYSIS

Na_2S_4 40.44%
Sulfur 30.27%
Other sodium salts including sodium thiosulfate, sodium carbonate and sodium sulfate 1.0% Max.

USES

Reducing organic nitro bodies; insecticides and fungicides; ore flotation reagent, manufacture of sulfur dyes, preparation of metal sulfide finishes, soaking of hides and skins prior to unhairing.

SHIPPING CONTAINERS

Steel drums 90 and 350 lbs. net and Tank Cars

**HOOKE
CHEMICALS**

10-377

From the Salt of the Earth

HOOKE ELECTROCHEMICAL COMPANY

15 FORT-SEVENTH ST., NIAGARA FALLS, N. Y.

New York, New York • Wilmington, California • Tacoma, Washington

MONOCHLOROACETIC ACID • ORTHODICHLOROBENZENE • SODIUM BENZOATE • CAUSTIC SODA • MURIATIC ACID • PARADICHLOROBENZENE • CHLORINE

When inquiring check CP 7066 on handy form, pgs. 2-3

MATERIALS

Coatings apply over damp, rusty or rust-pitted metal

Four chemical-resistant coatings which protect metal, concrete and wood from deterioration caused by chemicals, moisture and rust are described in a 4-page illustrated bulletin. They include a vinyl tank lining; a rubberized enamel for walls, ceilings and equipment; a vinyl primer for damp, rusty metal, galvanized surfaces or aluminum; and a vinyl coating for damp surfaces, rusted pits, said to eliminate sand blasting in many instances.

Uses, advantages, colors, unusual characteristics, etc., are presented. Issued by Wilbur & Williams Co., Dept. CP, Greenleaf and Leon Sts., Boston 15, Mass. When inquiring specify CP 7067 on handy form, pages 2 and 3.

Research reveals wide flexibility of oil-modified alkyds ...

shows how proportions and types of fatty acids and polyhydric alcohols affect alkyd's properties

Some recent work at the General Mills Research Laboratories has shed further light on how the degree of oil modification affects the properties of alkyd resins. Studied were fatty ester content vs. (1) solution viscosity of resin, (2) solubility, (3) film drying rate and (4) properties of dried film.

Two fatty acids were employed to modify a glyceryl phthalate and a pentaerythrityl phthalate alkyd. One acid, Aliphatic 34B, is produced from fractional distillation of soybean fatty acids; the other, Aliphatic 44A, from fractional distillation of tall oil fatty acids.

How solution viscosity changes

Tables 1 and 2 show that there is a narrow range in which the viscosity of the resin changes rapidly with respect to fatty ester content. In the case of the modified glyceryl phthalate alkyd resin, this range is around 50%. With the modified pentaerythrityl phthalate alkyd, it is closer to 60%.

It will be observed that the change in mineral spirits solution is more marked than in xylene. When the 50% resin was dissolved in various mixtures of these solvents, the rapid increase in viscosity did not occur until relatively high (about 80%) proportions of mineral spirits were used.

Fatty acid content and solubility

Solubility of the resin is directly proportional to fatty ester content. At low proportions of ester (below 50% modification), the resin is soluble in aromatic hydrocarbons, but insoluble in mineral spirits and fatty oils. At higher proportions (above 50% modification), it is soluble in all these solvents. All of the resins are soluble in xylene.

Fatty ester content vs film drying rate

Two tests were employed in determining film drying rates at various percent modifications. The "set" point is defined as the time required for the resin to no longer adhere to the finger when touched gently. The "set dry" point is when the film will not turn on a glass plate when pressure and twisting action are applied by the finger.

The graphs show how the fatty ester content affects the drying rate of the two series of oil-modified alkyds. It is obvious that the alkyds modified with Aliphatic 34B (soybean fatty acids) dry faster than those modified with Aliphatic 44A (tall oil acids).

In the "set dry" curve, the flat portion of the Aliphatic 44A

CHEMICAL PROCESSING

MATERIALS

curve from 50 to 35% oil modification is only a measure of solvent evaporation. Once the solvent has evaporated, the resin at 50% modification or lower has very little tack.

How properties of dried films change

As the fatty ester content increases, the following trends are observed: the hardness, water- and alkali-resistance decrease; and the solvent-resistance increases. The dried films of the alkyd modified with Aliphat 44A are somewhat better than those modified with Aliphat 34B.

Tests on the 50% modified glyceryl phthalate alkyd films (considered as representative), showed that films containing Aliphat 44A and 34B each had Sward rocker hardness of 6, and did not blush after boiling for 2 hrs in water. Both blushed when held in room-temperature water for two days; however, the 44A film recovered in 15 min, while the 34B film did not recover completely. With 1% alkali, the 34B film failed in 10 min; the 44A film in 25 min.

Conclusions

It can be seen that alkyds with a wide range of properties can be made by varying proportion and type of fatty acids used. Modified alkyds having a high proportion of fatty ester are oil-like; they become more resin-like as the ester content decreases.

Oil-modified alkyds represent a very flexible system of compounds. Not only can proportions and types of fatty acids and polyhydric alcohols be varied (as shown here), but also the types of dibasic acids. As a result, modified alkyds can be made to meet a wide range of specifications and uses.

(Summarized from paper by S. A. Harrison, appearing in Vol. 4, No. 2 of "Progress Thru Research", a quarterly publication of General Mills, Inc., Research Laboratories, 2010 E. Hennepin Ave., Minneapolis 13, Minn.)

Graphite products and plant equipment

Towers, sectional cascade coolers, pipe and fittings, and both plate-type and tube-and-shell heat exchangers are among products made from resin-impregnated graphite which are covered by this brochure. Impregnated and unimpregnated graphite for various applications are also discussed, and physical and chemical properties are presented. Thermal conductivity of various materials is compared to impregnated graphite.

Typical applications are listed. Features include resistance to thermal shock and most chemicals. Specifications and engineering drawings are presented. Issued by Falls Industries, Inc., Dept. CP, Aurora Road, Solon, Ohio. When inquiring specify CP 7068 on handy form, pages 2 and 3.

Characterizes zirconium silicate foundry sand

Properties of a zirconium silicate foundry sand are related in a 5-page bulletin. Being used as a core and facing material for casting high-temp metals such as stainless and alloy steels. Yields good carbon steel, gray iron, bronze, and magnesium and aluminum alloy castings.

Bulletin sets forth a general sand-mix guide for casting steel, bronze, and gray iron. "Berk Zircon Foundry Sand", issued by the Millmaster Chemical Corporation, Dept. CP, 420 Lexington Ave., New York 17, N. Y. When inquiring specify CP 7069 on handy form, pages 2 and 3.

APRIL, 1950

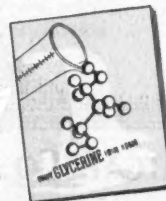


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TODAY'S druggist well knows the importance of U.S.P. Glycerine in healing compounds! One out of every four prescriptions he prepares contains this amazingly versatile polyalcohol. And "Glycerine" constantly meets his eye on the labels of a vast number of ointments . . . liniments . . . syrups . . . lozenges . . . biologicals, and other preparations. No need to remind him of Glycerine's wide application in pharmaceuticals! However, if you'd like to know where and how Glycerine is used in the drug as well as the cosmetic industry, send for this up-to-date, informative booklet: "Why Glycerine for Drugs and Cosmetics?"

TOMORROW—U.S.P. Glycerine will make even greater contributions to pharmaceutical progress. Past history indicates that it frequently plays an important part in the improvement of older materials and methods—and figures prominently in a number of new developments as well. For instance, one of the largest pharmaceutical houses employs Glycerine in the fermentation tank nutrient medium used to produce the new antibiotic, Chloromycetin. A description of this biological process will be sent on request. (Please use your company letterhead.) Here's further evidence that—nothing takes the place of Glycerine!

*Nothing takes the place
of Glycerine*



GLYCERINE PRODUCERS' ASSOCIATION
295 Madison Avenue, New York 17, N. Y.

When inquiring check CP 7070 on handy form, pgs. 2-3

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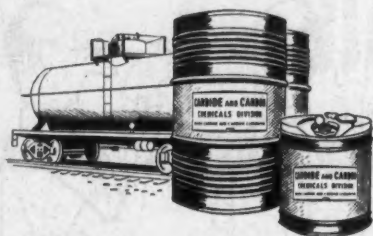
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When inquiring check CP 7071 on handy form, pgs. 2-3

STABELAN E IN PASTE FORM

for VINYL PLASTISOLS • ORGANISOLS • EMULSIONS

AS WELL AS REGULAR VINYL MILLED AND CALENDERED FILMS . . . A BETTER STABILIZER FOR HIGH TEMPERATURES, ULTRA-VIOLET AND OUTDOOR AGING . . .

Here is a newly developed stabilizer in paste form for high temperatures, ultra-violet and outdoor aging that improves other properties in vinyl films as well . . . It gives excellent light fastness, improves the transparency of clear films and gives films that do not absorb water and do not "blush" . . . It is compatible with all tested pigments — even organic reds hold their hue and age well when used with it.

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HARWICK STANDARD CHEMICAL CO.

AKRON 5, OHIO

BRANCHES: BOSTON, TRENTON, CHICAGO, LOS ANGELES

When inquiring check CP 7072 on handy form, pgs. 2-3

MATERIALS

Promotes faster mixing cycles in making rubber stocks . . .

rubber reinforcing resin has greater plasticizing action at lower processing temperatures

Uses: Production of shoe sole stocks, rubber flooring, wire insulation, cover stock for golf balls and inflated balls, garter buttons, gaskets, hose, wringer rolls, coated fabrics, high-impact stocks, hard-rubber items and miscellaneous molded goods.

Features: Similar to manufacturer's Pliolite S-6, this resin has been modified to give greater plasticizing action at lower processing temperatures. Because of these qualities, shorter and more rapid mixing cycles are possible.

Shoe sole manufacturers report improvements in hardness and flex life of sole stocks.

Description: Pliolite S-6B is a white granular powder with all the physical characteristics of S-6. May be incorporated in rubber by any of the established techniques, including direct mixing in the Banbury. In existing formulations using S-6, Pliolite S-6B may be substituted part for part.

Source: Produced by The Goodyear Tire & Rubber Company, Chemical Division, Dept. CP, Akron, Ohio . . . or for more information check CP 7073 on handy form, pages 2 and 3.

Controls many plant diseases on vegetables and fruits . . .

synthetic organic fungicide has undergone testing in many U. S. locations, foreign countries

Uses: Effective against wide variety of plant diseases ranging from apple scab in eastern United States to tomato and potato blights in Florida and diseases attacking bananas and coffee in Central America.

Features: High potency on fruits, as well as against vegetable blights. Has been tested extensively at several agricultural experiment stations in the U. S. and other countries.

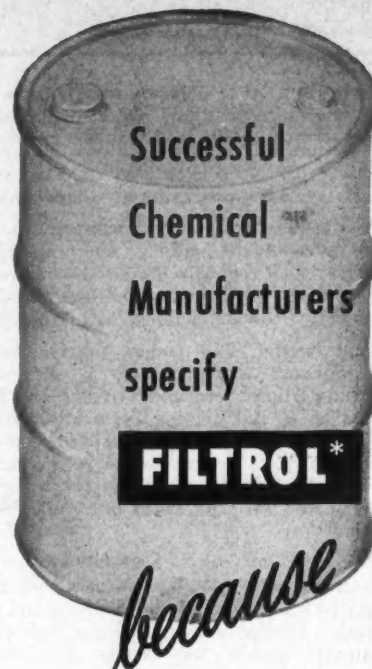
Description: Designated by the code name SR-406, synthetic organic fungicide contains N-trichloromethyl-thiotetrahydrophthalimide as the active component. The pure chemical is a colorless, crystalline material melting at 172°C. It is insoluble in water, but soluble in some organic solvents.

Preliminary toxicological testing indicates non-toxicity toward warm-blooded animals. At time of writing, the FDA is hearing testimony about the fungicide, necessary before deciding upon Government approval for use in agriculture.

Source: Esso Laboratories, Standard Oil Development Company, Dept. CP, P. O. Box 51, Linden, N. J. . . . or for more information check CP 7074 on handy form, pages 2 and 3.

Metallizing prevents corrosion

Metallizing as a means for preventing corrosion is theme of 4-page, 2-color folder. Six illustrated case histories cite the application of zinc to fan wheels, water storage tanks, high-pressure gas holders, filter beds, and refrigerator cold plates. "Metco News" (Vol. 4, No. 12) is issued by Metallizing Engineering Co., Inc., Dept. CP, 38-14 30th St., Long Island City 1, N. Y. When inquiring specify CP 7075 on handy form, pages 2 and 3.



Filtrol products permit increased production and lower operating costs through catalytic reaction or better decolorization and purification. No matter what your business—if it needs or can use catalysts or adsorbents, the "know how" of Filtrol process engineers is offered to help you take advantage of scientifically produced Filtrol products to meet your specific needs.

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Filtrol Corporation is the world's leading manufacturer of catalysts and activated adsorbents—vital to all phases of the chemical industry.

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General Offices: 727 W. 7th Street, Los Angeles 17
Plants: Vernon, California and Jackson, Mississippi

When inquiring check CP 7076 on handy form, pgs. 2-3

CHEMICAL PROCESSING

MATERIALS

More DDT in wettable powder and dust concentrate . . .

fine-milled materials contain 75% active ingredient

Uses: Wettable powder is intended for community spraying and other large jobs, malaria control work, residual spraying and crop spraying.

Dust concentrate will be marketed to formulators for manufacture of dusts, wettable powders and mixed insecticides of various strengths.

Features: Ingredients of both types of compound are air-milled to average particle diameter of less than 4 microns.

The wettable powder formula carries a higher concentration of DDT than has heretofore been available in this type of product, it is reported. Hence, freight and storage costs per lb of active ingredient are less.

Description: Both materials contain 75% DDT. The powder is quickly wettable in hard or soft water. It is available as a high-suspension stable material for residual spraying, or as a low-suspension material for quick-breaking suspension useful in crop spraying.

The wettable powder has excellent sticking qualities and leaves a minimum of visible residue, being comparable to emulsion formulations in these respects.

Source: Michigan Chemical Corporation, Dept. CP, Saint Louis, Mich. . . . or for more information check CP 7077 on handy form, pages 2 and 3.

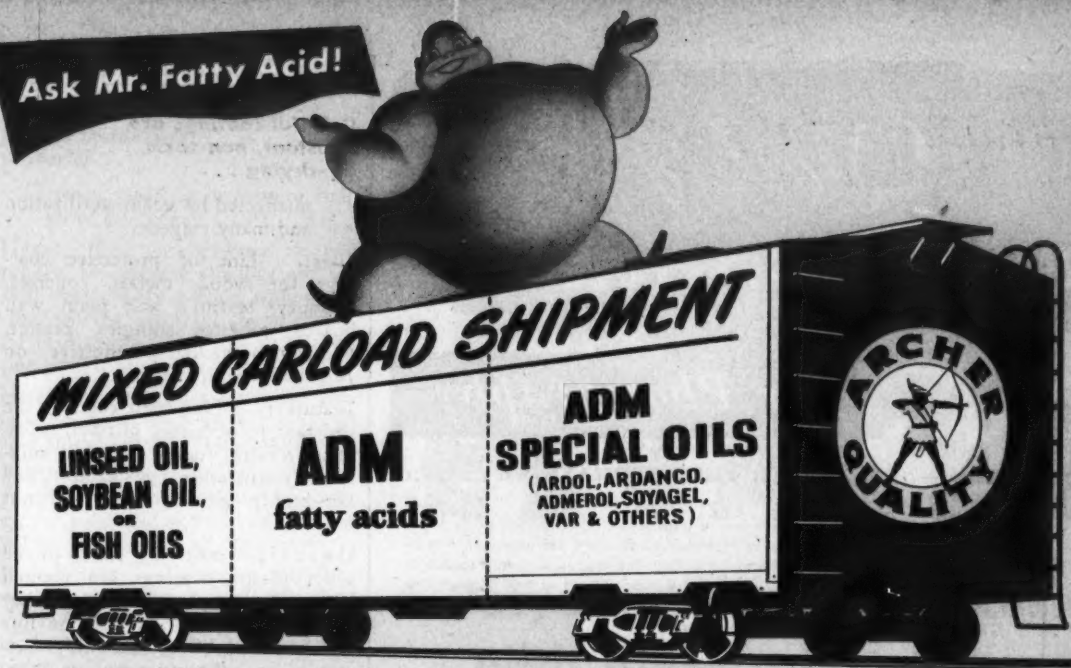
Answers many questions about Tygon tubing

Tygon tubing is subject of 24-page, 2-color bulletin. Material is clear, inert, flexible, non-toxic, non-aging, and sterilizable. Bulletin covers typical applications; compares properties and tabulates chemical-resistant characteristics for 6 standard formulations; details features; and specifies standard stock sizes. Includes illustrations.

Bulletin T-77, issued by U. S. Stone-ware, Dept. CP, P. O. Box 350, Akron 9, O. When inquiring specify CP 7078 on handy form, pages 2 and 3.

For more information on product at right, specify CP 7079 . . . see information request blank between pages 2-3.

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SAVE A PENNY A POUND ON CARLOADS OF

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● Here's an important price advantage that only Archer-Daniels-Midland Company can offer you . . . a cash saving of more than a penny a pound on every 30,000 lb. shipment of oils and fatty acids.

Because ADM can supply almost every type of vegetable oil and fatty acid, you can very readily switch from LCL shipments to the rock-bottom price level of mixed carload or compartment tank car purchases. A lower base-price plus freight savings will reduce your costs more than a penny a pound on mixed carload shipments . . . considerably more on compartment tank cars.

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Check our broad line of Fatty Acids at the right. Then mail coupon below for literature describing other ADM products and for information on the ADM Carload Purchase Plan. Schedule ADM mixed carload or compartment tank car purchases—for lower base prices, lower freight costs, reduced inventories, and assured satisfaction!

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FATTY ACID TYPE AND GRADE	PROTECTIVE COATINGS	SYNTHETIC RESINS	INKS	PUTTY AND CAULKING COMPOUNDS	METALLIC SOAPS	LIQUID SOAPS	WAXES AND POLISHES	INSECTICIDES AND DISINFECTANTS	LUBRICATING GREASES	COSMETICS	PHARMACEUTICAL
LINSEED											
Water White.....	X	X	X								
Regular.....	X	X	X	X	X	X		X			
SM-500.....	X	X	X	X	X	X		X			
SM-600.....	X	X	X	X	X	X		X			
Essential Unsaturated											
Free Fatty Acids.....											X
SOYA											
Water White.....	X	X	X								
Regular.....	X	X	X		X	X		X			
RO-4.....	X	X	X		X	X		X			
RO-10.....	X	X	X	X	X	X	X	X			
RO-115.....	X	X	X		X	X		X			
CORN-SOYA Double-Distilled.....				X		X	X	X			
CORN Double-Distilled.....				X		X	X	X			
COTTONSEED Double-Distilled.....		X			X		X	X			
COCONUT Double-Distilled.....		X				X		X			X

ARCHER-DANIELS-MIDLAND CO.
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Quality FINE CHEMICALS

for Photography

AMMONIUM THIOSULPHATE $(\text{NH}_4)_2\text{S}_2\text{O}_3$

Properties and Reactions

Available as a colorless to pale yellow 60% solution or as white, monoclinic crystals of high purity; both forms are essentially free of heavy metals, sulfate and sulfide. The crystals are very soluble in water; insoluble in alcohol and ether; the pH of a 60% solution is not lower than 7.0. It is a mild reducing agent; forms soluble complexes with heavy metals including silver.

Uses

Working ingredient in rapid photographic fixers; brightener in heavy silver plating baths; ingredient in cold, hair waving formulas; insecticide and fungicide (U. S. Pat. 1,515,308); ingredient of fog screen (U. S. Pat. 1,358,084).

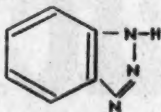
BENZOTRIAZOLE, PURIFIED

Properties and Reactions

White needle-like crystals; melts sharply above 96°C; purity 99+%; easily soluble in water, alcohol and benzene. Stable to acids and alkalis, and to oxidation and reduction; forms stable metallic salts.

Uses

Restrainer in photographic emulsions and developing formulas, giving sharp blacks and clear whites; especially valuable for photocopy work; active ingredient in Edwal Orthazite; of interest as a chemical intermediate.



OTHER PHOTOGRAPHIC CHEMICALS

o-Phenylenediamine	Developing agent
Photo Glycine	Developing agent
Chlorohydroquinone	Developing agent
Diethyl p-Phenylenediamine HCl	Color developing agent

Complete facilities for photographic formulation and packaging under your label.

EDWAL
LABORATORIES, INC.

Write for working samples and price quotations.

Plant and Office
RINGWOOD, ILLINOIS

When inquiring check CP 7080 on handy form, pgs. 2-3

MATERIALS

Colorful coatings are resistant, non-toxic, air-drying . . .

unaffected by steam sterilization and many reagents

Uses: Line of protective coatings for wood, metals, concrete, masonry, textured and plain wall boards, asbestos shingles, plaster. Proving particularly effective on petroleum equipment.

Features: Non-toxic coatings are resistant to abrasion, alcohol, acids, salts, alkalis, fumes, cleaning mixtures, sterilization by steam. They are highly dielectric and will not oxidize.

Description: Ready-mixed vinyl plastic coatings are applied by brush, spray or dipping. They are air-drying. Primer of the line is a good inhibitor, and enjoys success as an adhering agent on magnesium, aluminum and other metals.

The "Calvinac" line includes "Calvoseal", a coating created for concrete, masonry, wall board, etc. It dries with evaporation of water, demulsification taking place early in drying cycle. Once dry, it is impervious to moisture.

Calvoseal can be used on "hot" plaster or concrete. No preparatory coating is needed. Because of its sealing ability, it is often used on lengths of material prior to construction. Smooth surface resists dirt absorption.

All coatings are available in a selection of colors.

Source: Produced by James Lithgow Company, Inc., Dept. CP, Los Angeles 22, Calif. . . or for more information check CP 7081 on handy form, pages 2 and 3.

Stresses precautions in handling chlorine

Twenty accident prevention and safety measures to be followed in handling liquid chlorine are contained on handy wall chart. Covers helpful suggestions on employee protection, equipment maintenance, precautions in locating leaks, and first aid. Chart is 14 x 19", printed in green and black on linen-backed paper; top and bottom are metal-bound with metal hangers attached.

Handling of Liquid Chlorine chart, issued by Heavy Chemicals Division, The Pennsylvania Salt Manufacturing Company, Dept. CP, 1000 Widener Bldg., Philadelphia 7, Pa. When inquiring specify CP 7082 on handy form, pages 2 and 3.

Federated first for Lead Products

Asarco Sheet Lead . . . All commercial weights and sizes. Chemical . . . Tellurium Chemical . . . Antimonial.

Asarco Lead Pipe . . . All commercial sizes. Special sizes on request. Chemical . . . Tellurium Chemical . . . Antimonial.

Asarco Lead and Lead Lined Valves
• • • Split Type "Y" and "Angle", Standard "Y", Gate, Check, Hard Lead "Y", Plug and Seat.

Asarco Lead Fittings . . . Elbows, Crosses, Tees, "Y's", (with plain ends, with flanges on, or for flanging in the field). Chemical and Antimonial.

Asarco Lead Wool . . . 5/8" rope in 50 lb. waterproof bags.

Asarco Lead Specialties . . . Extrusions and Castings to specification.

See Federated also for Lead Lined Pipe
Lead Lined Fittings, Lead Lined Flanges

Federated Metals Division

AMERICAN SMELTING AND REFINING COMPANY,
120 BROADWAY, NEW YORK 5, N. Y.



When inquiring check CP 7083 on handy form, pgs. 2-3

WOOD TANK REPAIR PROBLEMS SOLVED



CARBO-FLEX

- Gives old tanks renewed life indefinitely
- Eliminates wood sponginess and splintering
- Waterproofs completely
- Saves money and time
- Applies very easily
- Sets without baking
- Cannot be separated from wood
- Withstands temperatures to 350° F

Write for Details:

Complete information and test specimen sent upon request. No obligation. (CARBO-FLEX is merely one product in our complete line of acid, alkali and solvent resisting Cements and Coatings . . . Write us your corrosion problems.)

CARBOLINE CO. • 7603 Forsyth • St. Louis, Mo.

When inquiring check CP 7084 on handy form, pgs. 2-3

CHEMICAL PROCESSING

6 types

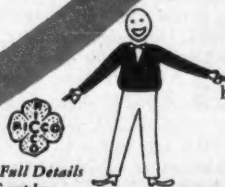
7 melting points

special grades

PICCOLASTIC RESINS

elastic, thermoplastic, hydrocarbon

These pale color resins are made in seven melting points from 5° C to 150° C. They are unsaponifiable; stable in package, body and film; soluble in low-cost solvents; acid and alkali resistant. Five grades, from soft to hard, horny. Permanently thermoplastic.



Write for Full Details
and Samples

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CLAIRTON, PENNSYLVANIA

Plants at: Clairton, Pa.; West Elizabeth, Pa.; and Chester, Pa.
Distributed by: Pennsylvania Folk Chemical Co., Pittsburgh 30, Pa.
and Harwick Standard Chemical Co., Akron 3, Ohio

When inquiring check CP 7085 on handy form, pgs. 2-3

MATERIALS

Making protective coats, plastic insulating material . . .

plastic available in form of rod,
sheet or tubing

Uses: Anti-corrosive metal primers and surface coatings are for steel storage tanks, refinery equipment, electroplating racks, oil pipes, chemical equipment, instrument cases, marine equipment.

Hysol 6000, a plastic insulating material, is being used as wire coatings and piping for chemical industries.

Features: In addition to manufacturing facilities, company has built a pilot plant and research facilities to test products under all conditions.

Description: Company was formerly a consultant in protective coating and corrosion control fields. This marks its embarkation into manufacturing field.

Plastic material mentioned above is supplied in sheet, rod or tube form, and can be shaped by ordinary metal-working machinery.

Source: Products of Houghton Laboratories, Inc., Dept. CP, Olean, N. Y. . . or for more information check CP 7087 on handy form, pages 2 and 3.

Vinyl coatings are quickly applied

Vinyl coatings for finishing industrial products — metal, wood, paper, ceramic surfaces, etc. — are described in 4-page, 2-color brochure. Discusses features of coatings — quick application, durability, chemical inertness, and non-toxicity. Includes many illustrations of coating being used in maintenance work, undergoing lab tests, etc.

"Gaco Vinyl Finishes and Coatings", issued by Gates Engineering Company, Dept. CP, P.O. Box 1711, Wilmington, Del. When inquiring specify CP 7088 on handy form, pages 2 and 3.

Covers safe handling of radioactive isotopes

Twenty-nine-page handbook covers safe handling of radioactive isotopes — discussing specific problems of personnel, lab design and equipment, hazard instrumentation, and hazard monitoring. For handbook 42, entitled "Safe Handling of Radioactive Isotopes", remit 15c direct to the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

CAN A LOW-COST RESIN EMULSION SOLVE YOUR PROBLEMS?

TRY DU PONT ELVACET

REG. U. S. PAT. OFF.

A Polyvinyl Acetate Emulsion with these advantages

"Elvacet" emulsion . . . contains colorless, odorless, non-yellowing resin; excellent aging and light-fastness.

Easily applied—requires no costly or flammable solvents.

Uniformly dispersed in water.

Wide latitude in compounding with starches, dextrans, gums, waxes, many synthetic resins, chlorinated rubber, rubber latex and other common types of extenders, pigments and plasticizers.

for these applications

Adhesives and binders for: Cellophane, paper, cardboard, cloth, felt, straw, wood, cork, leather, metal, metal foil, mica, sand, ceramics.

Grease-proof coatings on paper or other materials . . . or grease-resistant sizes.

Rubber latex replacements and modifiers.

Textile finishes: fabric stiffeners, coatings; laminations; hat sizes.

Carriers for insecticides.

For more information about "Elvacet," help in its use for a specific application, samples, etc., send the coupon below. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Wilmington 98, Delaware.

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ELECTROCHEMICALS



BETTER THINGS FOR BETTER LIVING
THROUGH CHEMISTRY

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Dept., Wilmington 98, Del.
Please send me information about "Elvacet" polyvinyl acetate emulsion.

Name _____
Position _____
Firm _____
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CPR-A1

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When inquiring check CP 7089 on handy form, pgs. 2-3

A DOW CORNING
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ANTIFOAM
A
SILICONE PRODUCT

The most versatile
and efficient defoamer
on the market

Write Dept. G today
for free sample

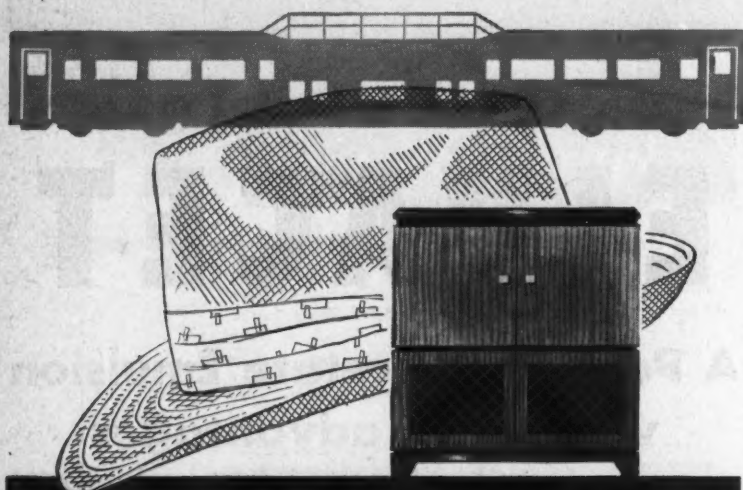
Dow Corning

MIDLAND • MICHIGAN

When inquiring check CP 7086 on handy form, pgs. 2-3

APRIL, 1950

from RAIL CAR CLEANING... TO STRAW AND WOOD BLEACHING



VICTOR OXALIC ACID is preferred

The versatility and popularity of oxalic acid are indicated by its wide range of uses. Today, Victor oxalic acid is employed in:

- Leather Processing
- Cleaning Railroad Cars
- Radiator Cleaning Compounds
- Laundry Sour, for Neutralizing Alkali, Discharging Bleach, and Removing Iron Stains
- Bleaching Straw, Wood, Cotton Linters
- Removing Rust Stains from Marble
- Purifying Rosin
- Manufacture of Metal Polishes
- Manufacture of Candles, Varnish, Paper, Textiles

Victor oxalic acid is a brilliant, transparent, colorless, crystalline material. It is a strong acid in convenient, dry form. Typical quality: Assay (min.) 99.8%, $(\text{COOH})_2 \cdot 2\text{H}_2\text{O}$, SO_3 (max.) 0.05%. Solubility: 12.5 parts in 100 parts water at 25°C. Available in barrels or fiber drums.



VICTOR CHEMICAL WORKS

141 West Jackson Boulevard • Chicago 4, Illinois

When inquiring check CP 7090 on handy form, pgs. 2-3

MATERIALS

Purity of reagent assures accuracy in analytical determinations...

ferrous ammonium sulfate contains less than 0.000% of copper, zinc, manganese, or phosphates

Uses: Reagent for oxidation-reduction methods in analytical determinations.

Features: Pure — contains copper, zinc, manganese, and phosphates in amounts less than 0.000%; ferric iron, 0.005%; and insolubles 0.01%.

Description: Ferrous ammonium sulfate is made from low-alloy Swedish carbon steel, and is processed to assure highest purity, a necessity in many laboratory determinations.

Source: Product of the Fisher Scientific Co., Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. . . or for more information check CP 7091 on handy form, pages 2 and 3.

Service from rubber at 85° below...

fabric impregnated with material used for exposure clothing

Uses: Rubberized fabric for extremely low temperatures. Being used in a new type of exposure suit for members of the armed forces of the United States.

Features: Capable of useful service in temperatures even lower than 85 degrees below zero.

Description: B. F. Goodrich makes the man-made rubber with which fabric is impregnated. Another company fabricates the clothing.

Source: The B. F. Goodrich Company, Dept. CP, Akron, Ohio . . . or for more information check CP 7092 on handy form, pages 2 & 3.

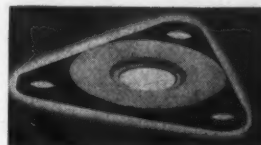
Tells safe handling of insecticide

Illustrated folder details instructions for safe handling of a chemical highly effective against many agricultural insect pests. Includes advice for handling drums, housekeeping in formulating areas, application, and protective equipment. Contains first aid information. Useful to formulators, distributors, and customers.

"Handle Parathion Safely", issued by the Monsanto Chemical Company, Dept. CP, St. Louis 4, Mo. When inquiring specify CP 7093 on handy form, pages 2 and 3.

New plastic inert to practically all chemicals, serves up to 500° F.

Du Pont "Teflon"® tetrafluorethylene resin superior to all other materials for gaskets and packings in chemical resistance, also has outstanding electrical properties.



Uses: Gaskets, pump and valve packings; electrical insulation for motors, generators, conductors, and for high-frequency, high-temperature and high-voltage wires and cables.

Features: "Teflon" is inert to all chemicals except molten alkali metals and fluorine under extreme conditions, has zero water-absorption, withstands temperatures ranging from -90°F. to 500°F., has an extremely low coefficient of friction. Tough, flexible "Teflon" outlasts other gasket materials up to 25 times and other packing up to 300 times! For electrical uses, it has a low dielectric constant (2.0) and a power factor of 0.0005. Both are constant over the entire frequency measured to date—60 cycles to 30,000 megacycles.

Description: "Teflon" is available in sheets, rods, tubes, tape, molding powder and suspensions, which, on evaporation, yield continuous film. On request, Du Pont will recommend molders or fabricators of finished parts. For further information and booklet, "TEFLON in Gaskets and Packing," write to—

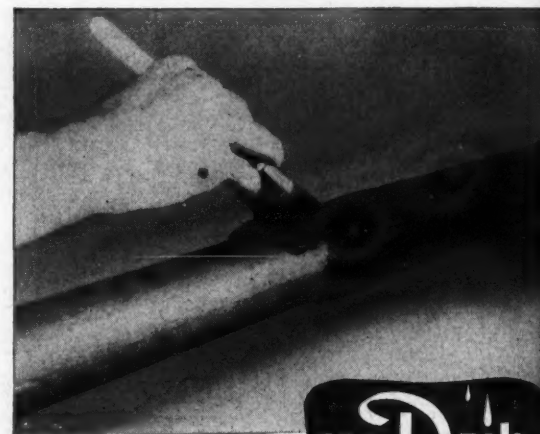
Source: E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Dept.—Plastics Sales, 9523-B Nemours Bldg., Wilmington 98, Del.



BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

(Advertisement)

When inquiring check CP 7094 on handy form, pgs. 2-3



COVER PIPES TANKS, WALLS

NoDrip

Anyone can brush, trowel or spray NoDrip on any clean, dry surface. Goes on like plaster, forms a seamless, protective coating, stops condensation drip!



NoDrip keeps equipment and floors safe and dry; prevents corrosion of metal and prolongs its life. Acid, alkali and brine resistant. Comes in 1, 5, and 55 gal. drums, ready for use.

TRY NoDRIP

Apply NoDrip to a small area, compare the results with uncovered portions.

Send for free NoDrip Handbook
J. W. MORTELL CO., 530 Burch St., Kankakee, Ill.

When inquiring check CP 7095 on handy form, pgs. 2-3

CHEMICAL PROCESSING

No More Frozen or Galled STUDS
(even at 1800 F:!) Try this Amazing
Money Saver.

FREE Test Sample
of the NEW FEL-PRO

CUT costly stud breakage,
heater dismantling time,
pitting of metal surfaces!

We'd like to send you a free
sample of the new Fel-Pro C-5
"Hi-Temp" Thread Compound
to try on your toughest thread
compound problems, includ-
ing alloy and stainless steels.
Then you can see the amazing,
money-saving results being ob-
tained by the nation's largest
refineries, utilities and process
industries. Fel-Pro's exclusive
Colloidal-Copper formula
keeps metal parts separated,
regardless of temperatures. Its
neutral action solves the alloy and stain-
less steel pitting problems. One utility
company reports that heater dismantling
time has been cut from two days to four
hours, by the use of Fel-Pro C-5 "Hi-
Temp". Why not see what "Hi-Temp"
can do for you... get your free sample
and complete data sheet—write today!

C-5
"HI-TEMP"
THREAD
COMPOUND

Eliminates Pitting of Stain-
less and Alloy Steels at all
Temperatures!



FELT PRODUCTS MFG. CO.
1515 Carroll Avenue, Chicago 7, Illinois

When inquiring check CP 7096 on handy form, pgs. 2-3

MATERIALS

Standard hydrocarbons:
NBS adds nine more
to its series . . .

total of 178 now available for
calibrations in lab

Uses: For calibrating analytical
instruments and apparatus in re-
search, development and analytical
laboratories of the petroleum, rub-
ber, chemical and allied industries.

Description: The National Bureau
of Standards and the American Pe-
troleum Institute, through a coopera-
tive program begun in 1943, have
prepared 178 compounds to be used
as standard hydrocarbon samples.

The nine most recent additions are:
n-tetradecane; n-pentadecane; 4,4-
dimethyl-cis-2-pentene; cyclopentyl-
cyclopentane; 1-methylnaphthalene;
1-dodecene; 1,2,4,5-tetramethylben-
zene; n-decylbenzene; 1,2,3,4-tetra-
hydronaphthalene.

Each sample is 5 ml, and is sealed "in
vacuum" in special Pyrex ampoule
with internal break-off tip. Instruc-
tions for transferring samples "in
vacuum" are available.

Source: National Bureau of Stand-
ards, Washington 25, D. C.

Synthetic waxes are
amide, ester types

Theme of 16-page catalog is synthetic
waxes. Synthetics are in general light-
colored, hard, and non-tacky waxes;
are commercially pure amide and ester
types. Catalog tabulates solubility,
specific gravity, melting point, color,
flash point, acid value, and application
data. Includes some special plastic
and adhesive waxes.

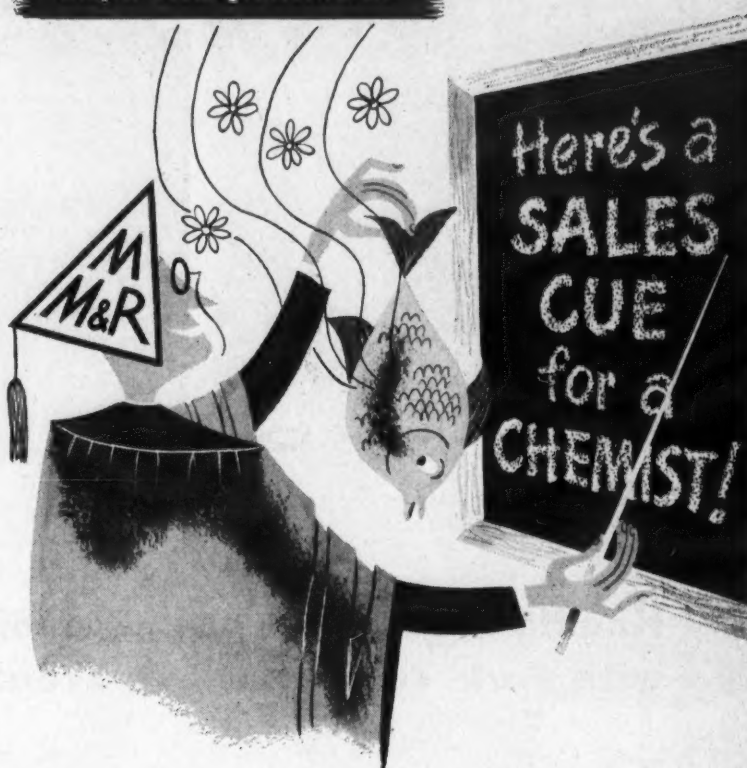
Synthetic wax catalog is available from
Glyco Products Co., Inc., Dept. CP,
26 Court St., Brooklyn 2, N.Y. When
inquiring specify CP 7098 on handy
form, pages 2 and 3.

Details extrusion of
Tenite plastic

"Tenite Extrusion" is title of 28-page
publication containing detailed infor-
mation on extrusion of Tenite I and
II, manufacturer's cellulose acetate
plastic and cellulose acetate butyrate
plastic, respectively. Covers general ex-
trusion of these plastics, extrusion
equipment, extrusion of tubing and
sheeting. Includes diagrams to illus-
trate text.

Issued by the Tennessee Eastman Cor-
poration, Dept. CP, Kingsport, Tenn.
When inquiring specify CP 7099 on
handy form, pages 2 and 3.

says the professor



A little perfume or flavor ingeniously em-
ployed will *make sales* soar for even the most
prosaic of products! For example, MM&R
chemists have added distinctive taste or aroma
to food wrappings and fish liver oil, toothpicks
and textiles. With an MM&R-created taste or
scent personality, your product can out-sell
competition, too!

Think it over—
then, call on
MM&R

Write Dept. C-4

Builders of **PRODUCT PREFERENCE**
through **QUALITY ESSENTIAL OILS,**
PERFUMING MATERIALS
CONCENTRATED FLAVORS and
exclusive **MM&R DEODOR-SCENTS**
SINCE 1895

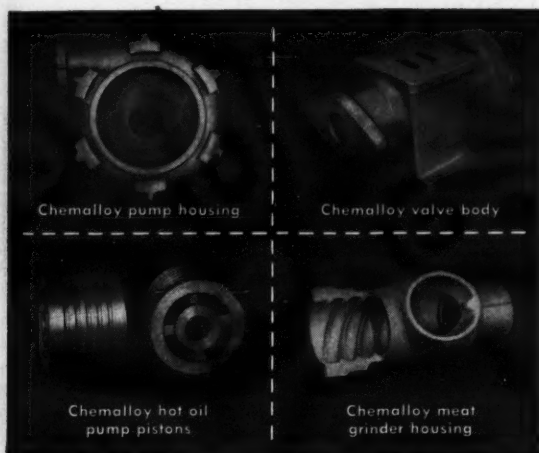


MAGNUS, MABEE & REYNARD, INC.

SINCE 1895... ONE OF THE WORLD'S GREATEST SUPPLIERS OF ESSENTIAL OILS
16 DESBORRES STREET, NEW YORK 13, N. Y. • 221 NORTH LA SALLE STREET, CHICAGO 1, ILL.

Los Angeles: Braun Corp. • Seattle, Portland, Spokane: Van Waters & Rogers, Inc. • San Francisco: Braun-Knocht-Heimann Co.

When inquiring check CP 7100 on handy form, pgs. 2-3



To Combat CORROSION
... Specify CHEMALLOY*

Chemalloy is not just one alloy, but a group of alloys...
each developed to combat certain corrosive conditions.
Wherever your corrosion problems require stainless,
Ni-Resist* or other high alloys, investigate Chemalloy.
Write for Bulletin T-171, Electro-Alloys Division,
1925 Taylor Street, Elyria, Ohio.

*Reg. U. S. Pat. Off.

AMERICAN
Brake Shoe
COMPANY

ELECTRO-ALLOYS DIVISION

When inquiring check CP 7097 on handy form, pgs. 2-3

APRIL, 1950



Picking up 50 case pallet load from automatic palletizer on a "take-it-or-leave-it" pallet



Unloader accessory pushes palletless load off forks to position cases in trailer so that load is snug, compact



Four forks of truck slide easily between slats of pallet. Load is picked up and transferred to trailer, pallet being left behind

Material Handling

Handle 1200 Cases of Household Cleanser per Hour with Fork Truck; Rarely Break a Bottle

PROBLEM: Roman Cleanser Co., Detroit, Mich., used manual handling and a conveyor system in moving cases of bottled household cleanser. By this method, cases had to be transferred from stockpiles and loaded into highway trailers for shipment. Job was laborious, delays were frequent, and loss from breakage ran as high as 15 to 20 cases a day.

Loading trailer to capacity of 750 cases took 4 men one-half hour, due largely to the fact that stockpile was 100' away. More rapid handling and loading of finished goods, better utilization of manpower and elimination of breakage had to be secured.

Solution: Mechanized handling system was installed which included a fork truck with special unloading accessory, two automatic palletizing machines and take-it-or-leave-it pallets.

Palletizing machines completely eliminate manual handling in assembling cases into snugly stacked pallet loads. Design of pallets permits them to be picked up quickly. Loads are easily moved to storage and tiered several pallets high, practically to the ceiling.

When cases of the bottled cleanser are to be loaded into highway trailers for shipment, forks of trucks are guided under bottom row of cases, and entire load is lifted free of pallet. When these unpalletized cases are brought to the trailer, the unloader accessory pushes the entire load off forks, placing it close against trailer wall or other cases already positioned.

Each pallet holds 50 cases, and single pallet loads are easily and quickly handled by truck and its operator. Telescoping masts of trucks, when completely retracted, permit driving truck and load through areas and openings with exceptionally low clearance. This is a great advantage when driving truck right into highway trailers. Also, easy maneuverability and precise control of

Mechanization speeds shipments, saves manpower, storage space; eliminates former breakage of 15-20 cases per day

truck overcome handicap of narrow aisles and limited floor space to a great extent.

Results: One man using truck with special unloader accessory now handles 1200 cases an hour. He loads a highway trailer in just 11 minutes, even though distance from stockpile to shipping platform is 100'. Breakage has been eliminated almost entirely, and all

handling speeded up. Crew formerly used for manual operations is now released for more productive jobs in plant. Total operating costs have been cut drastically.

Source: Model LT-44 truck and unloader accessory are built by Towmotor Corp., Dept. CP, 1226 East 152nd St., Cleveland 10, Ohio . . . or for more information check CP 7101 on handy form, pages 2 and 3.

Ship Paper Bags on Disposable Pallets, Cut Unloading Time, Labor up to 80%

Unit loads may be glued or wrapped, compressed, strapped or interlocked to provide stability and strength

USES: Efficient, economical shipping of various kinds of paper bags to plants using them. Upon receipt, bags are easily unloaded, stored or handled in numerous in-plant operations.

Features: Both wood and disposable pallets reduce

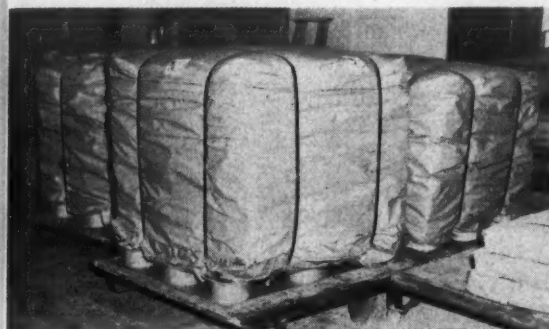
overall costs. Disposable pallets, which are so widely adaptable to handling paper bags, offer the additional advantages of low initial cost, minimum shipping weight and elimination of the "return" problem.

Properly palletized bags are easily stored in minimum

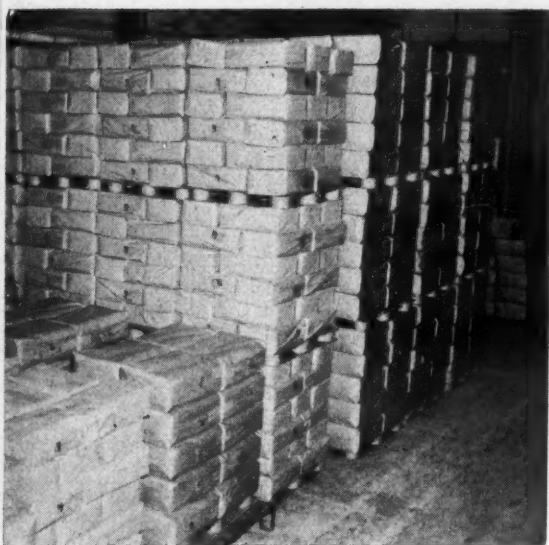
CHEMICAL PROCESSING

space, protected during storage and easily counted in stock-taking. They may also be systematically spotted and arranged for easy access to storage space.

Description: In addition to the familiar types of wood pallets, a number of disposable pallets are being used with considerable success. The latter can be obtained in both single- and double-deck types, that is,



Multiwall bags on double-deck disposable pallet, wrapped, compressed and strapped ready for loading into car



Combined strength of unit loads of bags and disposable pallets permits tiering for maximum use of storage space

with a cardboard sheet either above, or both above and below, the legs. Legs are made of rolls of corrugated board. Experience emphasizes the desirability of the double-deck type, as loads may be either adhered or strapped.

A wooden batten type pallet may be used where small bags are pre-baled, and where bales are compact and capable of supporting considerable weight without collapsing. This pallet is composed of a fiber board tray supported by 2 x 4" cross-pieces of wood. Bales on such pallets are adhered to each other.

After the most suitable pallet has been selected, the next step is building pallet loads. Considerations here involve size and shape of the units to be loaded, size of pallet, amount of compression, if any, which can be applied, and whether or not load can withstand strapping without damage. Amount of weight units can support is also important. Weight of other identical pallets superimposed perhaps three or four high must be taken into account.

(Continued on top of page 36)



SURE RELIEF for shipping headaches



Pack your product in a Continental steel container

Shipping headaches go away fast when you come to Continental. We can supply you with just the right steel container for every chemical product from anti-freeze to adhesives.

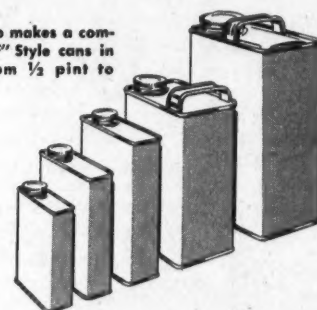
Continental's rugged pails and drums are built to take it. They protect your products during every mile of travel, weather the roughest handling, and come up beaming sales appeal.

There's no question that it is sound salesmanship to put your trademark and sales message on the side of every pail and drum you ship—and the better the lithography, the better the

salesmanship. Continental's master lithographers have the skill and experience to lithograph your steel containers in colors and designs that really sing. Another good sales idea is to standardize the labels of your entire line and give it a family appearance.

Why not check with Continental today and get all the facts about Continental steel containers?

Continental also makes a complete line of "F" Style cans in every size from 1/2 pint to one gallon.



CONTINENTAL © CAN COMPANY

Eastern Division: 122 E. 42nd St., New York 17

Central Division: 135 So. La Salle St., Chicago 3

Pacific Division: Russ Building, San Francisco 4

When inquiring check CP 7102 on handy form, pgs. 2-3

Union Special

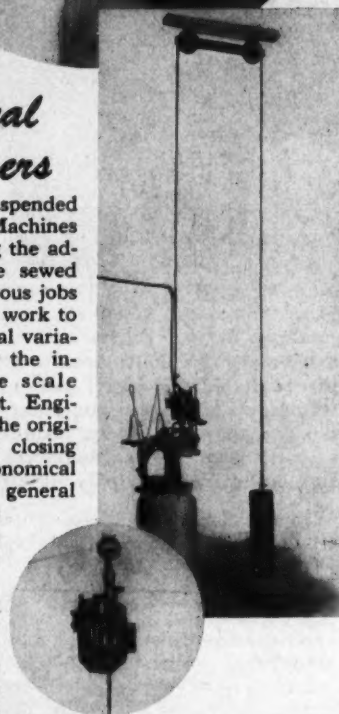
suspended head utility units



Economical Bag Closers

• Union Special Suspended Head Bag Closing Machines are designed to bring the advantages of machine sewed closures to the numerous jobs where the amount of work to be handled or seasonal variation does not justify the installation of large scale production equipment. Engineered and built by the originators of filled bag closing equipment, these economical units are ideal for general service in small mills or for utility and standby duty in large mills.

For complete information on what Union Special Suspended Head Utility Units offer, write for Bulletin 201. Union Special Machine Co., 442 N. Franklin St., Chicago 10, Illinois.



Suspended Head Units are furnished in four combinations of sewing heads and suspensions. You have your choice of either the Class 14500 sewing head (shown above) or the heavy duty Class 80600 sewing head and your choice of the tandem pulley suspension on the Top Lock Thor Balancer (shown in the inset).

ASK FOR
NEW BULLETIN

When inquiring check CP 7104 on handy form, pgs. 2-3

MATERIAL HANDLING

(Continued from page 35)

Usually it is necessary to so arrange pallet loads that a "brick wall" type of interlocking is provided, with no vertical planes of cleavage.

Where nature of product permits it, adequate compression, before load is strapped, is a prime factor in satisfactory palletization. Loads should have a solid, flat-top surface which can receive application of a heavy compressive force. Also, the flat top permits stacking of pallet on pallet. Prescribed strapping embodies two strips in each direction around load and through or under pallet.

Small bags are pre-baled and cannot be subject to strapping because resulting distortion will interfere with subsequent use of the bags. Therefore, they should be cemented into a compact and interlocked load, with adhesive between each of the baled units. Bundles may be easily separated vertically but do not move horizontally.

Palletized shipment, of course, affords advantages in both loading and unloading. Upon arrival at destination, fork-lift trucks can remove doorway pallets without difficulty. With provision of necessary access, trucks can also remove and spot remaining pallets. Users receiving bags in palletized shipments report reductions in unloading time as high as 20 manhours per carload.

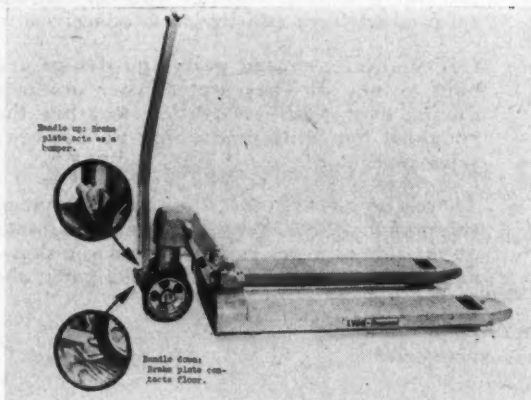
Source: Paper bags and multiwall bags are made and shipped in palletized loads by Bemis Bros. Bag Co., Dept. CP, 209 Pine St., St. Louis 2, Mo. . . or for more information check CP 7105 on handy form, pages 2 and 3.

Ease pallet load down ramp with brake plate that also serves as bumper . . .

device incorporated in lightweight pallet truck as standard equipment; operated by towing handle

Uses: For handling wide range of lightweight pallet loads.

Features: Recently added feature is a combination brake and bumper. This consists of a curved steel plate which is welded to bottom of towing handle. When



Brake-bumper plate welded to bottom of truck handle

handle is raised, plate extends out in front of truck and acts as bumper. By holding handle down, plate contacts floor, acting as brake. Greater downward pressure on handle increases braking action.

Description: Lightweight pallet truck, illustrated,

BELTING BUILT FOR THE TOUGH JOBS



HEWITT-ROBINS Belting Lasts Longer . . . Costs Less!

When trouble comes by the ton, the easiest, most dependable, most economical way to move it is on a Hewitt-Robins conveyor belt.

Today engineers the world over instinctively specify Maltose Cross® where the going is really tough, Ajax® for general service, and Conservo® for light work and portable conveyors.

For Hewitt Rubber belting is protected against moisture,

oils, flexing, and ply-separation. Maximum strength plus flexibility are assured through extra-tough rubber covers, heavily textile-reinforced.

For details on belting—or for entire belt conveyor systems—write Hewitt Rubber Division, Buffalo 5, N. Y.

HEWITT-ROBINS

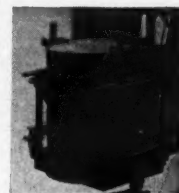
CONVEYOR BELTING

HEWITT-ROBINS  INCORPORATED

When inquiring check CP 7160 on handy form, pgs. 2-3

CESCO DUMPER HANDLES BAGS, DRUMS AND BULK

MULTI-PURPOSE DUMPERS for dumping bags, bulk or drums, as well as single-purpose types save handling time and reduce accidents. Dumping heights range from 5 to 12 ft. Special sizes made on order. Have lifting capacity of 500 lbs.; handle up to 100 loads per hr. 1/2 H.P. motor controlled by push button. Immediate delivery. Write for 8-page catalog.



DEALERS
IN ALL
SECTIONS

COLSON EQUIPMENT & SUPPLY CO.

1321 WILLOW STREET • LOS ANGELES 13, CALIFORNIA

When inquiring check CP 7107 on handy form, pgs. 2-3

CHEMICAL PROCESSING

MATERIAL HANDLING

now includes this feature as standard specification.

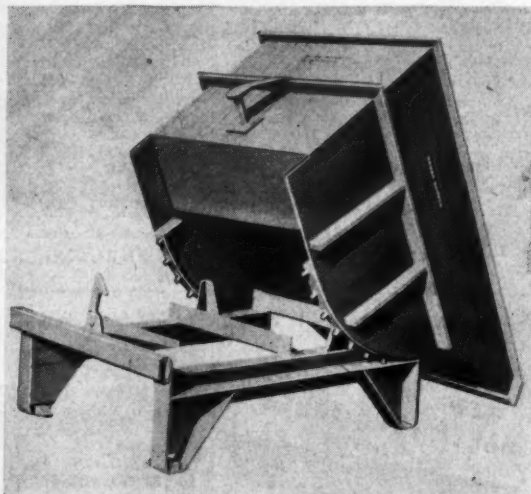
Source: Lyon-Raymond Corp., Dept. CP, 6361 Madison St., Greene, N. Y. . . . or for more information check CP 7108 on handy form, pages 2 and 3.

Move, dump hot castings and sprues in self-dumping 1 cu. yd. hoppers . . .

unload when operator of truck carrying them lifts instant-release handle

Uses: For self-dumping hopper applications involving loads of one cubic yard. These particular units were especially designed for the Buick Motor Div. foundry to handle hot sprues and castings.

Features: Withstand warping when handling hot



Dumper fits any standard lift truck

materials. Easily unloaded by lifting patented release handle.

Description: Hopper bodies are built of 1/2" plate throughout and fit any standard type lift truck.

Other hoppers of standard design are available in 1/2, 3/4, 1, 1 1/2 and 2 cu. yd. sizes. They can also be designed for flat trucks and with special flanges to permit stacking.

Source: Roura Iron Works, Inc., Dept. CP, 1407 Woodland Ave., Detroit, Mich. . . . or for more information check CP 7109 on handy form, pages 2 and 3.

Turn to Page 6

for an announcement of interest to

- Engineers
- Technicians
- Chemists
- Lab Workers

— and Other Readers of This Magazine

take the Hackney Cylinder Way to lower cost shipping of all types of gases



No matter what types of gases you ship—you'll find a strong, lightweight Hackney Cylinder especially designed for the job.

Designed with shippers' requirements in mind, they're lightweight to assure exceptional shipping and handling economies. Their rugged strength protects your product every minute—in storage and transit.

This outstanding light weight and

strength are made possible by the Hackney Deep Drawing Process. This manufacturing method assures uniform sidewall thickness; eliminates excess material. Then, after complete fabrication, controlled heat-treating is employed to improve the physical properties still further.

Write for full details on Hackney cylinders—the cylinders that really protect your product and lower your cost doing it.

PRESSED STEEL TANK COMPANY

Manufacturers of Hackney Products

Main office and Plant: 1463 South 66th Street, Milwaukee 14, Wisconsin

1387 Vanderbilt Concourse Bldg., New York 17

235 Hanna Bldg., Cleveland 15

936 W. Peachtree St., N.W., Rm. 126, Atlanta 3, Georgia

208 S. LaSalle St., Room 2085, Chicago 4

568 Roosevelt Bldg., Los Angeles 14, California



CONTAINERS FOR GASES, LIQUIDS AND SOLIDS

When inquiring check CP 7110 on handy form, pgs. 2-3

P-S Materials HANDLING EQUIPMENT

CUSTOM BUILT TO MEET
YOUR NEEDS



Item
NS-288
\$5525

BARREL and BOX GRAB

For picking up any type of wood or steel barrel, box or container, from 40" diameter down to small nail keg size. Will lift up to 2000 lbs.



Item NS-298 \$4630

HAND DUMP TRUCK

Reinforced heavy sheet steel, $\frac{1}{2}$ cubic yard, capacity—two 8" semi-steel wheels and two 4" metal swivel casters. Wt. 125 lbs.

Automatic END DUMP

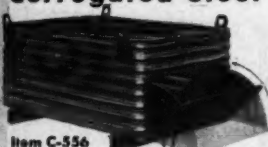
Built $\frac{1}{2}$ to 1 $\frac{1}{2}$ cu. yds. cap. Use with lift truck or can be furnished mounted on wheels.



Item S-878

Corrugated Steel STACKING BOX

with Hinged Door



Item C-556

One of the convenient uses of the box is on a steel stand. Door opens to any set angle by means of the chain, simplifying parts disposal by standing or sitting workmen. Built to dimensions and load capacity specified by the customer, including underneath clearance. Crane lugs, stacking brackets, and color of paint desired may also be specified.

UTILITIES RACK

on wheels

Item NS-415M
(Roller bearing, 6" x 2", all metal wheels.)
\$6160

Item NS-415R
(Ball bearing, 8" x 1 $\frac{1}{2}$ ", rubber-tired wheels.)
\$6380



CARBOY TRUCK

Gripping Yoke loads automatically. Steel studs on truck grip the load—no slipping—all-steel, welded construction.

Item B-488M \$3800
Metal Wheels

When Ordering please give item number.
Prices subject to change without notice.



Item B-488R
Rubber Tired
Wheels
\$4200

DESIGNED AND MANUFACTURED BY

Palmer Shile Co.
16016 FULLERTON AVENUE • DETROIT 27, MICH.

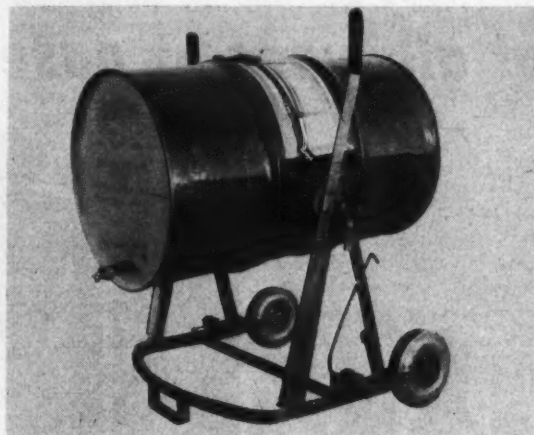
MATERIAL HANDLING

Rack picks up heavy drums, permits tilting, locking in any position . . .

portable unit balances load for safe, fast handling; loads moved easily on rubber-tired wheels

Uses: For safe, easy, controlled tilting or transporting of 50 or 55 gal. drums. Provision for locking drum in any position is an advantage in mixing various materials.

Features: Rack is lightweight, yet ruggedly constructed. In lifting and transporting, center of gravity is almost directly over wheels so that sufficient weight



Drum locks into any position on portable rack

on handles permits operator to keep a full load under control at all times with complete safety.

Description: Unit serves both as rack and as drum hand truck. Drums are securely fastened by positive toggle locks and strong band easily supports weight of loaded drum (see illustration).

Rack has handles set at a comfortable level, while the two large rubber tired wheels increase maneuverability.

Source: Portable drum racks are built by Penco Engineering Co., Dept. CP, 725 2nd St., San Francisco, Cal. . . . or for more information check CP 7112 on handy form, pages 2 and 3.

Reduce pin wear, deflect material, protect bucket elevator chains . . .

chain designed to mount either "dove-tail" lock buckets or conventional type "A" buckets

Uses: Designed to give more dependable, smoother operation and contribute to better bucket elevator performance.

Features: As a result of improved design, links fold into place on sprocket or traction wheel and maintain almost steady contact throughout rotation, minimizing friction and wear on inside and outside surfaces of the link barrel.

Description: Made of a heat-treated alloy steel. Design embodies projecting guards which deflect material from chain joints; slotted boss ends prevent pin from rotating and protect cotter pin from wear. Connecting pins are made of heat-treated alloy steel and have a centerless ground finish that greatly reduces friction. Also features single link barrel larger

STOP THIS

WITH A
Standard
UTILITY BELT-VEYOR
LIFT OR LOWER—FLOOR TO FLOOR
OR CONVEY HORIZONTALLY

MOVE boxes — cartons — crates — sacks and bundles from basement to first floor, or any floor to floor, or convey in a straight line — continuously with the Standard UTILITY BELT-VEYOR. A compact, pre-engineered unit, easy to install (over existing stairways where practical) handles commodities up to 150 lbs. — available in 4 belt widths — 10, 14, 20 and 24 inch — and equipped with adjustable guard rails to facilitate handling packages wider than belt. Electric motor operated. Write for Bulletin CP-40.

Standard Conveyor Company
North St. Paul
Minnesota
Sales and Service in
Principal Cities

Standard
GRAVITY & POWER
CONVEYORS

When inquiring check CP 7113 on handy form, pgs. 2-3

NEW BAKER FORK TRUCK

Model FT

Costs less to buy—
Does more work per dollar—
because of its
100% FUNCTIONAL DESIGN

126" LIFT
63" Free Lift
83" O.A. Height

- Greater Visibility
- More Comfortable to ride
- Easier to operate
- Interchangeable Uprights
- No-Plug Controller
- Baker-Built Motors
- Soft-Touch Brakes
- Cushion Tires
- Worm-Drive Axle
- Wide-Angle Steer
- All-Steel-welded Frame

CAP.—3000 and 4000 lbs.
WIDTH—35 inches
WEIGHT—6600 and 7500 lbs.
TURNING—Operates in 64" intersecting aisles with 36" forks. Outside turning radius 73 inches.

LEARN HOW LITTLE THIS TRUCK COSTS!

Write for full descriptive data and prices and see for yourself why the Baker FT costs less to buy and does more work per dollar because of its 100% functional design.

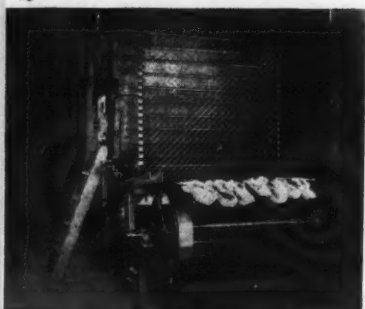
BAKER INDUSTRIAL TRUCK DIVISION
of The Baker-Raulang Company
1208 West 80th Street • Cleveland 2, Ohio

Baker INDUSTRIAL TRUCKS

When inquiring check CP 7114 on handy form, pgs. 2-3

CHEMICAL PROCESSING

When inquiring check CP 7111 on handy form, pgs. 2-3



A Cambridge One Direction Weave Belt, chain driven and fitted with stiffening rods, carries raw wool through the continuous drying operation. The wide-open mesh permits free passage of the warm, dry air for fast, clean drying.

with Cambridge WIRE BELTS

Cambridge Wire Belts are efficient workers in your field. They serve in heat, cold, corrosive and wet processes; through packaging and assembly operations—moving quickly or slowly at constant or varying speeds. Wherever a material can be processed during movement, a Cambridge belt can, and does, save time, money and floor space.

Cambridge offers you a modern engineering staff with experience in your field and skilled workmen to produce the right belt in the correct mesh and weave, metal or alloy to perform your operation better . . . for longer.

Consult your Cambridge representative—look under "Belting, Mechanical" in your Classified Telephone Directory or write direct.

FREE BOOK—Famous throughout industry as the most valuable reference work on belts and conveyor systems. Write for your free copy . . .

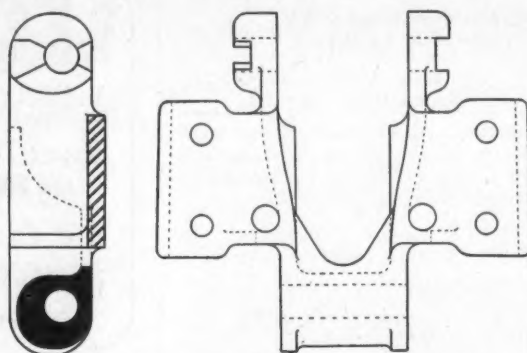


**Cambridge
Wire Cloth Co.**
Dept. F • Cambridge 4, Md.

Wire cloth in rolls. Also specialized wire fabrications.
OFFICES IN PRINCIPAL INDUSTRIAL CITIES

When inquiring check CP 7115 on handy form, pgs. 2-3

MATERIAL HANDLING



Design prevents wear, deflects material from joints

in size and 3/16" thicker on the side which receives wear from connecting pin and wheel, and special K-2 attachment which permits use of either maker's Beaumont "dove-tail" lock buckets or conventional type "A" buckets.

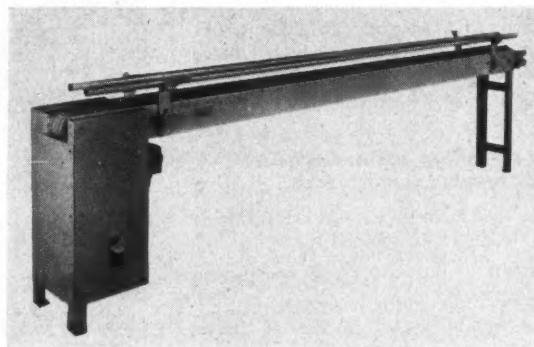
Source: Beaumont Birch Co., Dept. CP, 1505 Race St., Philadelphia, Pa. . . or for more information check CP 7116 on handy form, pages 2 and 3.

Adjust conveyor speed to related operations; move bags, bottles, cans . . .

units made in range of lengths of 10-26'; use 1/4 hp or larger motor depending on length, load

Uses: Conveys bags, cartons, bottles, cans or various small packages to and from processing or handling operations.

Features: Variable speed drive is adjustable from approximately 250 to 750 lineal inches of belt travel per minute. Provision is made for 10 inches of slack take-up on conveyor belt. Driving parts are confined to a minimum of space beneath conveyor.



Belt travel adjusts within 250-750 inches per minute

Description: Powered by 1/4 hp or larger motor, depending on conveyor length and weight of unit loads. Available in 10, 14, 18, 20, 22, 24 and 26 ft lengths. Tubular guide rails are provided and knob adjustment locks position height and spacing between rails.

Source: Variable speed drive conveyors are built by Miller Wrapping & Sealing Machine Co., Dept. CP, 18 South Clinton St., Chicago 6, Ill. . . or for more information check CP 7117 on handy form, pages 2 and 3.

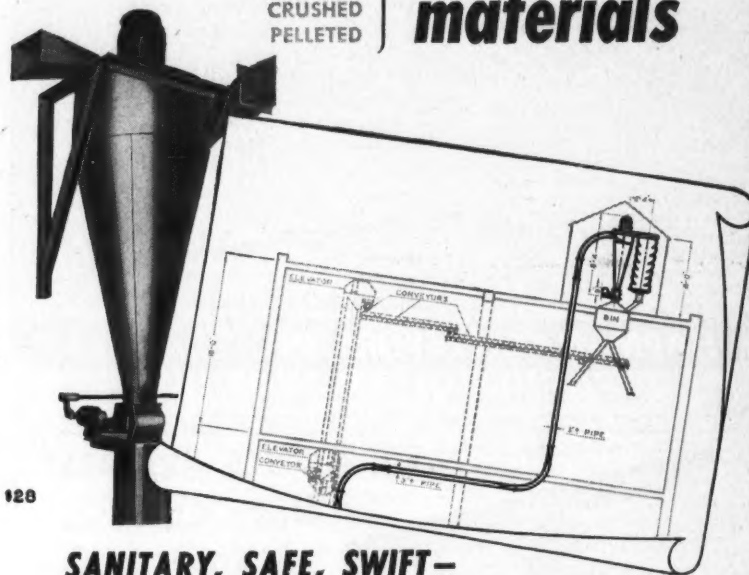
SPROUT-WALDRON'S

PNEU-VAC

THE MODERN AIR CONVEYOR SYSTEM

for handling
**bulk
materials**

POWDERED
GRANULATED
FLAKED
GRATED
CRUSHED
PELLETED



**SANITARY, SAFE, SWIFT—
SAVES time, labor, SPACE and MONEY**

Pneu-Vac, the modern conveyor system, is rapidly changing the old concepts of bulk materials handling. Adaptable to almost any conveying situation, it replaces bucket elevators and screw conveyors, steps up production and provides sanitary products handling.

Specially engineered for individual processing needs, Pneu-Vac prevents the accumulation of materials within the system, eliminates dust, and improves working conditions. Because materials do not pass through fan blades, quiet operation and low maintenance costs are assured and costly breakdowns avoided.

Installation requires small space—if you have room for a conveying pipeline you can have Pneu-Vac in your plant.

Investigate how this up-to-the-minute system can modernize your bulk materials handling and greatly increase your operating efficiency. Write for Bulletin 18c.

Address Sprout, Waldron & Co., Inc.
10 Waldron Street, Muncy, Penna.



Sprout-Waldron

Manufacturing Engineers
SINCE 1904
MUNCY, PENNSYLVANIA

Size Reduction • Mixing and Blending

Bulk Materials Handling • Product Classification • Pelletizing and Special Facilities

When inquiring check CP 7118 on handy form, pgs. 2-3

HAPMAN

Tubular Chain or Cable
CONVEYOR

FOR
FLOWABLE
MATERIALS

Is Yours a PECULIAR CONVEYING PROBLEM? SUCH AS...

IS YOUR CONVEYING PROBLEM CONCERNED WITH THE HANDLING OF A MATERIAL RESEMBLING IN WEIGHT, SIZE, DENSITY OR TEXTURE ONE OR MORE OF THE FOLLOWING:

- Powdered coffee • Filter earth
- Soap cuttings • Spent grains
- Sugar and flour • Zinc oxide
- Coal and Coke • Talc powder
- Ground cork and peanuts
- Ceramic powders

The above "flowable" products and many others are now being handled successfully by HAPMAN CONVEYORS. The complete list is given in our catalog which shows also the many ways Hapman Conveyors can be used to help solve "peculiar" conveying problems.

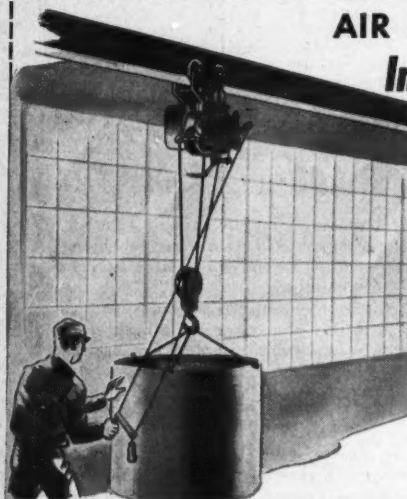
cleanliness—sanitation—contamination • odor—flame—explosion control • keeping several types of materials segregated • accurate volumetric feeding • operations in more than one plane or direction without transfer points • limited space for clearances and supports

These are only part of 45 "peculiar" conveying problems which are met successfully by the completely engineered Hapman Conveyors.

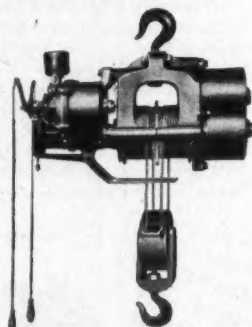
HAPMAN CONVEYORS, INC. 2405-D W. McNichols Road
Detroit 21, Michigan

When inquiring check CP 7119 on handy form, pgs. 2-3

AIR HOISTS ARE BEST In Many Cases...



A Detroit Air Hoist can be readily moved about and quickly hung in position, saving the time and removing the burden and hazards of hand handling. It pays its own way if only a few minutes of one man's time per day is saved.



DETROIT HOIST & MACHINE CO.
8216 Morrow St., Detroit 11, Mich.

Company _____
Address _____

Fill in company name, address and send us this ad for a copy of Air Hoist Bulletin 700.

When inquiring check CP 7120 on handy form, pgs. 2-3

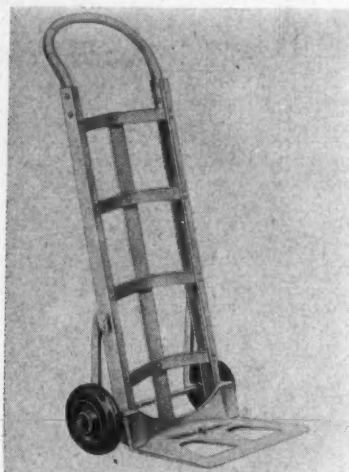
MATERIAL HANDLING

Magnesium hand truck weighs only 12 lbs...

features heavy load-capacity despite extreme lightness

Uses: All-magnesium hand truck for moving loads on level surfaces or between two levels, including ramps or stairs.

Features: Heavy-duty load capacity despite extreme lightness.



All-magnesium hand truck

Weighs less than 12 lbs. Addition of stair climbers permits moving between floors.

Description: Curved back frame for carrying bulk goods, all types of containers. Model 40-D-600 SC. An addition to manufacturer's line of magnesium trucks, covered by Bul. HT-101.

Source: Magline, Inc., Dept. CP, Pinconning, Mich. . . . or for more information check CP 7121 on handy form, pages 2 and 3.

Free-rolling casters, wheels for moving towed loads...

available in 4 mountings, provide 20% more rollability

Uses: For use on power towed equipment.

Features: Casters are of prime aluminum alloy specially constructed to reduce clutch wear, battery strain and mechanical fatigue on power towing equipment.

Wheels have a more practical tread contour and shore hardness contributing to minimum rubber displacement under load.

Description: Casters are available in both rigid and swivel types. They have sensitive swivelling action and lifetime, sealed-in lubrication.

LEE

MATERIAL HANDLERS

THE INDUSTRY'S MOST IMPORTANT DEVELOPMENT

**Saves Time,
Money
and Costly
Manpower**



LEE Materials Handler dumping 500 lb., 54 gallon barrel of preserves in 4 ft. high kettles. Other models for specific jobs. Write for Bulletin LM-13.

LEE METAL PRODUCTS CO., INC.

418 PINE STREET, PHILIPSBURG, PA.

ALL LEE KETTLES ARE MADE TO A.S.M.E. CODE

When inquiring check CP 7122 on handy form, pgs. 2-3

THE Styl-O-Veyor Jr.

PORTABLE
BELT
BOOSTER



Write now for
Bulletin HP20-2A

**\$385.00
COMPLETE**



The Styl-O-Veyor Jr. is always ready, able and willing to load and unload trucks & freightcars, convey from one level to another or to stack cartons or cases in your warehouse. Lifts at 32 degree angle . . . one piece formed steel bed . . . all aluminum motor with sealed for life bearings . . . IT IS THE LOWEST PRICED UNIT OF ITS TYPE ON THE MARKET TODAY . . . Write for more details today.

ISLAND EQUIPMENT CORP.
27-01 Bridge Plaza No.
Long Island City 1, N. Y.

When inquiring check CP 7123 on handy form, pgs. 2-3

CHEMICAL PROCESSING

"HAMMOND" means

**FINEST QUALITY IN
SCREW CONVEYOR AND
BUCKET ELEVATING EQUIPMENT**

The famous "NU-HY"
Bucket for Grain and
granular materials.



"Tite-Seal" Con-
veyor Box "U"
edging and Cover Clamps
eliminate belts and nuts.

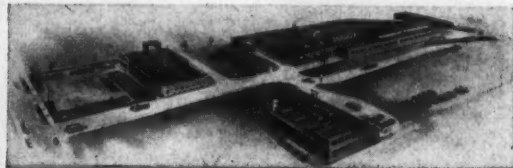


Helioid and Sectional Flight
Screw Conveyor fabricated in
all standard as well as in spe-
cial sizes.



Streamlined
Hangers
All Types

Ball and Roll-
er
Bearing
End
Thrusts
of
Superior
Design.



We have facilities to meet your every need.
Our large plant is equipped with the latest machinery and equipment to offer
you speedy delivery on all your requirements. Being specialists in the manu-
facture of conveying and elevating equipment is your assurance of smooth
functioning performance through an understanding of your problems.

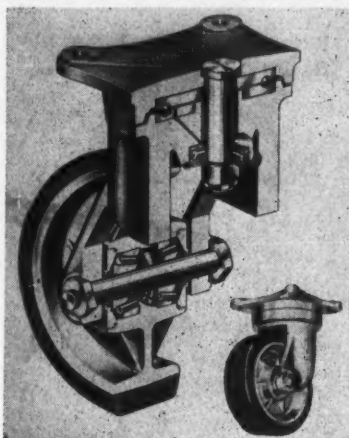
Write for
Cat. No.
749.

Screw Conveyor Corporation
699 HOLMAN ST. HAMMOND, IND.
ENGINEERS MANUFACTURERS
TRADE MARK REG. PRODUCTS U.S. PAT. OFFICE

MATERIAL HANDLING

(Lubriko Master Lubricant M-21).
Permanently adjusted king-pin is of
1 1/4" chrome molybdenum steel.

Wheels are permanently sealed and
lubricated with Lubriko Master Lu-
bricant M-21. Condensation will



Wheels, casters permanently sealed

not form in the air-tight, water-tight
wheel hubs or swivel caster rigs.
Steam under pressure or developed
vacuum will not disturb or destroy
sealing fixtures. Grease fittings are
neither required nor installed.

Timken or Bower automotive stand-
ard tapered roller bearings of the
largest possible size in relation to the
specified wheel diameter are used to
provide easier starting and smoother
rolling.

Heavy duty casters and wheels are
available in four different mount-
ings.

Source: Aerol Co., Inc., Dept.
CP, 2820 Ontario St., Burbank,
Calif. . . . or for more information
check CP 7126 on handy form, pages
2 and 3.

Aids selection of welding alloys

Rods for torch welding and electrodes
for arc welding a variety of metals are
features of 8-page, 3-color folder.
Metals which can be welded with
these welding alloys include cast iron,
steel, brass, bronze, copper, aluminum,
nickel and alloys, magnesium alloys,
zinc die castings, and stainless steels.
Hard-overlay and cutting rods are in-
cluded.

Selection chart is presented for handy
information on specialized welding al-
loys for specific jobs. Many photos
of welding applications. "Directory
Welder for 1950", issued by Eutectic
Welding Alloys Corporation, Dept.
CP, 40 Worth St., New York 13,
N. Y. When inquiring specify CP
7127 on handy form, pages 2 and 3.

MORRIS Type "R" SLURRY PUMP



Cuts Stuffing Box Maintenance...

Fluctuating Sealing Water Pressure Is No Problem when you in-
stall a Morris Type R Slurry Pump. Even when peak demand
on the plant supply line lowers the pressure, this pump
operates with minimum stuffing box wear. Only 10% normal
sealing water pressure is actually required . . . because Morris
Type R stuffing box is subject to *suction pressures only*. Low
line pressure is therefore sufficient to shut out grit effectively
. . . and still protect the slurry from objectionable dilution.

If no other Type R feature were listed, here's one that says:
Specify Morris. But there's even a bigger story. Ask for further
information on this outstanding slurry pump, servicing scores
of material handling applications.

OTHER MORRIS TYPE R FEATURES

- ✓ EASY TO INSTALL
- ✓ EASY TO MAINTAIN
- ✓ EASY TO DISMANTLE
- ✓ SIMPLEST DESIGN
- ✓ MINIMUM NUMBER OF WEARING PARTS

Specify MORRIS Type "R" SLURRY PUMP

MORRIS MACHINE WORKS
Baldwinsville, N. Y.
Branch Offices in Principal Cities

MORRIS Centrifugal Pumps

When inquiring check CP 7128 on handy form, pgs. 2-3

**LIFT 3000
POUNDS
10 FEET
IN 1 1/2
MINUTES**



with a Yale Worksaver tilting fork electric truck

● Smooth hydraulic telescopic
lift does the job. Truck picks up
giant loads . . . tilts them back-
ward 21° for maximum load
stability in travel.

● Saves time and money—
reduces handling to a mere
"stroll-and-steer" operation.

● 83"-model for factory and
warehouse use; 68"-model
stacks freight cars and motor
trucks to the roof.

● Capacities: 2,000 lbs. up to
3,000 lbs.

Write for literature.

YALE

THE YALE & TOWNE MANUFACTURING CO.
Roosevelt Boulevard • Philadelphia 15, Pa.

HAND LIFT AND POWER TRUCKS • HAND AND ELECTRIC HOISTS • INDUSTRIAL CRANES

When inquiring check CP 7125 on handy form, pgs. 2-3

APRIL, 1950

A U-TYPE *Absolute* PRESSURE GAUGE BY **MERIAM**

**Measuring directly in inches
or millimeters of mercury**

This new instrument is proving notably popular in various industries for the measurement of absolute pressures from one millimeter of mercury to the equivalent atmospheric pressure.

It is a U-tube manometer with one leg sealed and filled with mercury; the other open tube leg connects to the source of pressure to be measured. The tube is removable and can be easily replaced, when necessary, with another tube, mercury filled, shipped directly to location.

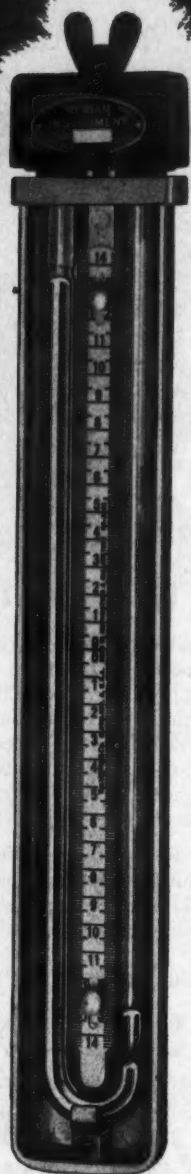
Of simple design—no cams, gears, levers—the Meriam U-Type Absolute Pressure Gauge is accurate and dependable. It is strongly built for lasting service. The gauge head fastens to the body by a single wing nut. Available in wall or flush front mounting styles. The wall mounted unit, illustrated, is Model C-1142 WM and is fully described in catalog sheet C-1142 WM—available upon request.

**THE MERIAM
INSTRUMENT CO.**
10940 MADISON AVENUE
CLEVELAND 2, OHIO

Western Division:
1418 Wilson Ave., San Marino 9, Calif.
In Canada: Peacock Bros. Ltd., Montreal

MERIAM ★
★ *Instruments*
ESTABLISHED 1911

MANOMETERS, METERS AND GAUGES FOR THE ACCURATE MEASUREMENT
OF PRESSURES, VACUUMS AND FLOWS OF LIQUIDS AND GASES



Continuous Measurement of Flow's Refractive Index Eliminates Spot Sampling

Recording refractometer halts flow when index deviates from pre-set value

USES: Used for continuous, automatic recording of the refractive index of liquids. Unit can control flow of liquid in main line, shutting off flow when refractive index changes from predetermined value or range of values.

Refractometer handles any aqueous or alcoholic solution free of suspended solids. Has been used on many different materials, including mixtures of vinyl and vinylidene chlorides, combinations of glycol derivatives, mixtures of styrenes with ethyl benzene, combinations of substituted styrenes with their corresponding saturated compounds.

Refractometer has been used in controlling fractional distillation where boiling points of two fractions are only 13°C apart, but where the refractive indices differ by 0.0455, enough to shift the refractometer pen full scale. Since installation of the refractometer in place of conventional temperature controller, separation has improved greatly and operation is smooth.

Features: Greatest advantage of the instrument lies in the elimination of the time lapse formerly required to discover presence of materials with undesired refractive indices. Constant attendance by laboratory technicians, and costly laboratory facilities are also eliminated.

Continuous record of product flowing through line is provided. Human error is virtually prevented. Sensitivity adjustment can be accomplished in 30 seconds, and is not a fussy or critical operation.

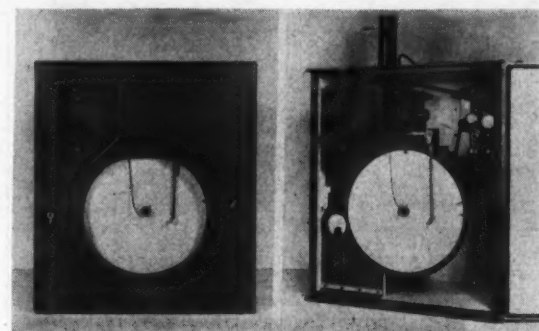
Description: Liquid to be controlled is passed through constant temperature bath contained in prism head, goes across the face of the prism, and exits through the top of the unit to be returned to the process line.

Optics of the unit are essentially those of a laboratory immersion refractometer. Sodium-arc lamp passes through liquid to sample-prism interface. Some of the light is refracted, passes through the prism and is focused by a lens on a slit about 0.1 mm wide.

This slit is directly in front of a phototube, both of which are mounted on a pivoted arm. As the refractive index changes, position of the light and dark field changes, thus varying output of phototube. This varying output is used to control position of phototube and slit by moving pivoted arm. Slit and phototube thus follow the level of the dark field. Recorder arm is connected to the pivoted arm to permit recording of its position or some function of its position.

Apparatus covers entire range of refractive indices from 1.32539 to 1.54409. Accurate within three figures in the fifth decimal place.

Constant temperature bath has range from 35 to 150°F, accurate within 0.02°F. Unit is equipped with air-operated controller. Refractometer is constructed to be flush mounted in instrument panel, can be installed any



Automatic recording refractometer, with right-hand view showing interior

distance from process pipes. Sheet metal housing has locking door fitted with gas-tight seal. Instrument measures 19 x 34 x 24".

Source: Precision Scientific Co., Dept. CP, 3737 Cortland St., Chicago 47, Ill. . . or for more information check CP 7130 on handy form, pages 2 and 3.

Accurate pressure indication given by direct-reading U-tube manometers . . .

reservoir-type offers easy cleanout, minimum instrument-fluid contamination

Uses: U-tube instrument for direct, accurate indication of pressure, vacuum, or differential pressure of liquids or gases. For line pressures to 200 psi.

Features: Drain and cleanout openings have straight machine thread with gasket seats which prevent contamination of manometer liquid by pipe-thread sealing compound. Mercury reservoir and passages to glass tube are lined with thermo-setting plastic lining, resistant to many acids, caustics, and thinners. Flow of liquid when draining is controlled by drain plug; prevents splashing.

Clean-out plug at rear of reservoir facilitates removal of tar-like materials blown into reservoir. Reservoir is demountable from case for cleaning. Manometer may be front-of-panel, wall-bracket, or tripod mounted. Glass tube has synthetic-material packing ring, preventing sticking as occurs in case of rubber.

Description: Models AF and AB are low-reservoir type manometers; have steel and brass U-tube parts respectively. Scale lengths range from 12 to 100". Models AFR and ABR are raised-reservoir types; have steel and brass U-tube parts respectively. Scale lengths range from 28 to 100". All models are available with standard or special scale graduations.

Five manometer liquids are available, some recommended specifically for certain models. Orange, blue, and green oil blends have specific gravities of .824, 1.00, and 1.200 respectively; red bromide blend has sp gr of 2.940, and mercury 13.546 (all at 20°C).

Manometer cases are steel channel with welded end plates; have rust-proofed finishes. Front cover is glass plate mounted in stainless steel bezel; protects glass tube and scale from dirt and damage.

Source: Products of the King Engineering Corporation, Dept. CP, Box 100, Ann Arbor, Mich. . . or for more information check CP 7131 on handy form, pages 2 and 3.

Pocket carries hydrometer for heavier-than-water materials . . .

foundry applies instrument for finding concentration of washes, sprays, coating materials



Pocket-size hydrometer

Uses: Specific gravity measurements of heavier-than-water materials such as paints, slurries. In foundry, the instrument is useful for measuring concentration of siliceous or carbonaceous washes, sprays, mold- or core-coating materials.

Features: Only 7-3/4" long and 3/8" in diameter, hydrometer may be carried in pocket like a pencil. Unbreakable.

Description: Clear-plastic body of device contains an easily read scale with range of 0 to 70 Baume'.

Source: Product of Harry W. Dietert Co., Dept. CP, 9330 Roselawn Ave., Detroit 4, Mich. . . or for more information check CP 7132 on handy form, pages 2 & 3.

High precision makes platinum thermometer useful as lab standard . . .

purest platinum wire is employed in manufacturing; one type has high speed of response

Uses: As a laboratory standard in thermometry.

Features: High precision assured by using very pure platinum wire, and using great care in all aspects of manufacture.

Description: The platinum wire of this resistance thermometer is double-wound on a glass quill, and held in place with pure alumina. Made 3 1/2" long, 0.320" diameter. Also available with a 12" long stem.

Two general types of the precision platinum thermometer are made. PP 1 has outside tube reamed to fit snugly over wound core. PP 2 has envelope collapsed over core by special process so that wire is solidly embedded. Thus, the PP 2 has a high speed of response.

Range to 450°C; 3 or 4 leads for the short thermometer. Standard resistance is 25.5 ohms, but other resistances are available.

Source: Paul G. Weiller, Dept. CP, 95 Broad St., New York 4, N. Y. . . or for more information check CP 7133 on handy form, pages 2 and 3.



A SK Fig. 1822 Armored Rotameter protects vital fresh-water supply aboard ship. Built to withstand heavy vibration, pressure and stresses and indicate water flow accurately.

B Rigid process control to insure quality cigarettes is accomplished by two SK Fig. 1891-EL Electronic Recording Rotameters, which measure flow of tobacco casing at cigarette factory.

C SK Fig. 1891 Rotameters measure flow of aromatic aldehydes in a chemical plant.

SK Rotameters are engineered to the job—will stand up under rugged service and give you hairline control. Used for measuring or controlling the flow of liquids and gases, these Rotameters are made in the wide variety of types and sizes demanded by today's complex industries.

The examples above give evidence of the way Standard SK Rotameters meet stringent requirements for strength, corrosion resistance and accurate control. Among the many standard types of SK Rotameters, made from a variety of materials, you can probably find the meter which fits your problem.

If not, experienced SK engineers can adapt or design a special Rotameter that's job-engineered to fit. Almost all of our standard Rotameters were designed just that way—to meet customers' unusual requirements for a versatile flow meter.

Put SK's problem-solving ability to work for you. Check the standard types of Rotameters available by writing for Bulletin 18-RA. If none of these meet your problem, write us outlining your special requirements.



SCHUTTE and KOERTING Company

Manufacturing Engineers

1173 THOMPSON STREET • PHILADELPHIA 22, PA.
JET APPARATUS • HEAT TRANSFER EQUIPMENT • STRAINERS • CONDENSERS AND VACUUM PUMPS • OIL BURNING EQUIPMENT • ROTAMETERS • FLOW INDICATORS • RADIATION TUBES • VALVES • SPRAY NOZZLES AND ATOMIZERS • GEAR PUMPS • DESUPERHEATERS

When inquiring check CP 7134 on handy form, pgs. 2-3

EYES

that see 5 MILES AWAY!

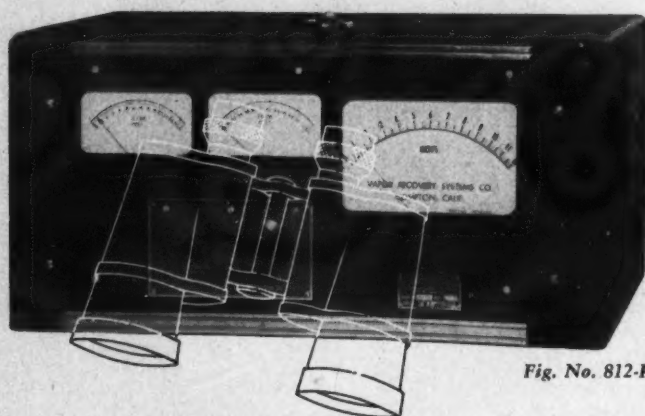


Fig. No. 812-R

Accurate Remote Reading Liquid Levels with the "VAREC" Electronic Gauger

No magic, but "VAREC" application of the science of electronics to the problem of tank gauging is now giving users the utmost in safety, convenience and accuracy in obtaining liquid levels at a distance from their tanks.

The "VAREC" Electronic Gauger Receiver illustrated is the multi-tank *explosion-proof* model on which you can gauge any one of 24 tanks by a twist of your fingers. Power is on only at the tank being gauged. Behind the front panel, all electrical components and wiring are enclosed in an explosion-proof housing. Wire count to the tanks is less than that of any other remote gauging and wire size is smaller due to the low current used.

Investigate this "VAREC" Electronic Gauger for your own gauging problem. Write today for a copy of "Remote Gauging at its Best!" and call in a "VAREC" Representative.



FEATURES

SAFE . . . No climbing slippery tanks during wet or icy weather—eliminates toxic gas hazard for personnel. Explosion-proof Receiver (illustrated) designed in accordance with standards for industrial control equipment as used in hazardous areas. Transmitter's electrical section completely isolated from tank vapors. Built to meet requirements of explosion-proof equipment.

ACCURATE . . . Accuracy is only limited by type of float gauge used. Measures liquid levels to $\pm 1/16$ inch with "VAREC" 253 Series Automatic Tank Gauges.

ECONOMICAL . . . Low initial cost; low installation cost; low maintenance cost. Pays for itself in manhours saved.

EASY TO USE . . . No waiting to take readings—you need only select the tank for a momentary or continuous accurate gauge reading. Instruments do not require resetting after power shutdown.

TROUBLE FREE MAINTENANCE. Designed to operate many years without service. Electronic elements function at $1/2$ to $1/3$ rated capacities. Plug-in parts easily replaceable.

INSTALLATION AND SERVICE POLICY. Engineering supervision of installation is available. Annual or biennial factory routine service check offered at nominal charge.

CP-17

THE VAPOR RECOVERY SYSTEMS CO.
COMPTON, CALIFORNIA, U. S. A.

Cable Address: VAREC COMPTON USA (All Codes)
New York • Boston • Pittsburgh • Chicago • Detroit • St. Louis • Houston
Tulsa • Casper, Wyo. • Provo, Utah • Los Angeles • San Francisco • Seattle

When inquiring check CP 7135 on handy form, pgs. 2-3.

PROCESS INSTRUMENTATION

Hurries solution of many lab calculations . . .

untrained personnel learn how to read slide rule quickly

Uses: Solving of problems involving a simple proportion, or any calculation where the required answer is proportional to a known value. Useful in gravimetric and spectrophotometric analysis, other types of work in the laboratory.

Features: Method of operation



Simplifies laboratory calculations

is simple to learn, even by an unskilled person. Saves time in lab calculations.

Description: The Chemputer is an adaption of the circular slide rule that has been simplified for specific applications. Two circular plastic scales are mounted one over the other, and a transparent rider with hairline is attached over both of these scales. Computations are made by setting one scale with respect to the other, according to the data involved, and readings are made direct from the scales, using the rider.

When the device is set to provide a calibration for a linear spectrochemical procedure, values of concentration of considered constituent are found on one scale, opposite the corresponding optical density readings on the second scale.

In gravimetric procedures, single setting of Chemputer will establish it to show directly the amount of considered element in any weighed precipitate. With a second setting, the percent of the element present in the original weighed sample will be shown.

A single Chemputer can be used in place of all linear calibration tables and curves. Calibration can be altered immediately to coincide with standard data.

Source: Product of Coleman Instruments, Inc., Dept. CP, 318 Madison St., Maywood, Ill. . . . or for more information check CP 7136 on handy form, pages 2 and 3.

This flow rate meter

ELIMINATES "BUBBLE COUNTING"



This compact flow meter is the answer to purge line (Bubbler) control . . .

true purge rate indication, easily and neatly panel mounted singly or in multiple, requires a minimum of space.

• \$12.60 with needle control valve

• \$9.10 without control valve

(lower prices when purchased in quantity)

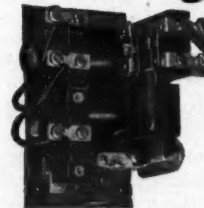
Write for catalog 30.

FLOWRATOR • FISCHER & PORTER CO.
Trade Mark Dept. OP2-9E Hatboro, Pa.

When inquiring check CP 7137 on handy form, pgs. 2-3



All Electric FLOATLESS LIQUID LEVEL CONTROLS



The original — pioneered by B/W in 1933. No floats! No vacuum tubes! No moving parts in liquid. Literature describes relays and switches, automatic starter and relay combinations, multiple pump controls, special controls and panels and many application diagrams. Controls not affected by pressures, temperatures, acids or caustics. Remote control if desired. Ice free electrodes where necessary.

WRITE FOR CATALOG

B/W CONTROLLER CORPORATION

2204 E. Maple Road, Birmingham, Mich.

FIRST IN THE FLOATLESS CONTROL FIELD

When inquiring check CP 7138 on handy form, pgs. 2-3

CHEMICAL PROCESSING

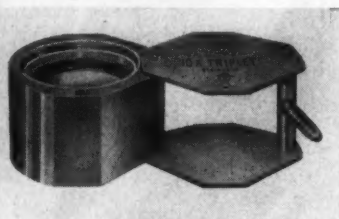
PROCESS INSTRUMENTATION

Design 10X magnifier for clarity, service . . .

small device is protected by stainless steel frame; color-free field with extreme flatness, brilliance

Uses: Visual inspection of plastics, pigments, metals, minerals, textiles, insecticides, detergents, pharmaceuticals, dyes, metal finishes, pulp and paper, raw materials.

Features: Wide, brilliant and color-free field. Minimum optical aberrations and distortion. Maximum



Magnifier is built for rugged service of field inspection

error in curvature is $2\frac{1}{2}$ wave lengths on exterior surfaces and 5 wave lengths on balanced surfaces, seamed surfaces. Uses flawless optical pot glass. No plated metal parts.

Description:

10-power H a s t

ings Triplet magnifier's 3 cemented lens elements are mounted in hard-finished aluminum cell protected by stainless steel frame. Extra-heavy nickel-silver jump ring is provided for attaching to watch chain or cord.

Source: Manufactured by Stratex Instrument Company, Dept. CP, 1861 Hillhurst Ave., Los Angeles 27, Calif. . . . or for more information check CP 7139 on handy form, pages 2 and 3.

Design Geiger counter for prospectors . . .

also useful in lab; detects beta particles as low as 160 KEV; small size, lightweight, portable

Uses: For detection of beta particles, as well as gamma, cosmic, and x-rays. Designed particularly for the prospector. Can be used to estimate the quantity and quality of ore in the field; may be used equally well in the laboratory.

Features: Portable Geiger counter is small in size and light in weight. Instrument detects beta particles as low as 160 KEV. An earphone, neon flasher, and a 3-range meter are employed as means for indicating radiation. Low-cost, long-life batteries are used. Instrument is completely weather-proofed and tropicalized. Geiger tube is 900-volt type with a 30 mg/sq cm thin window section; its life is in excess of 100 million counts.

Only one simple control is used. Counter is small enough in itself to be used as a probe; stainless steel probes are furnished as optional equipment.

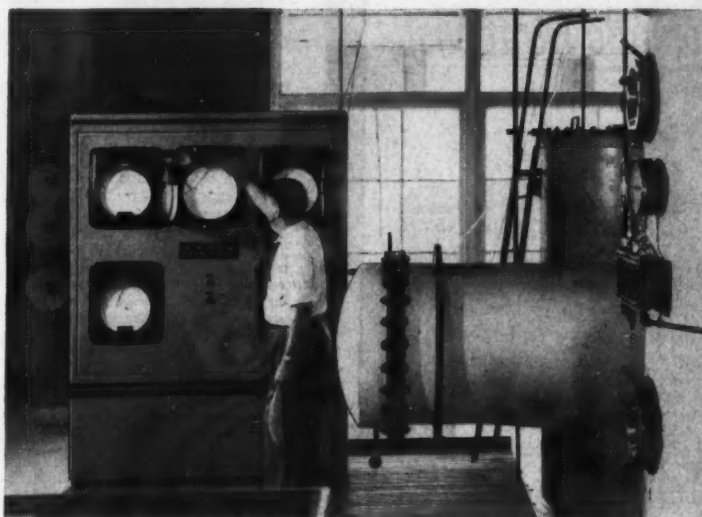
Description: Following are specifications of Model 106 Geiger counter: approx. size — $3\frac{1}{2} \times 4 \times 6\frac{1}{2}$ "; approx. weight — $3\frac{1}{2}$ lbs; ranges — 20, 2, and 0.2 milliroentgens per hr. Counter is sensitive to beta and gamma radiation. Furnished complete with batteries, earphone, tubes, and carrying strap, as well as with a carrying handle.

An electronic, automatic voltage regulator is employed for keeping the high voltage constant. Amplifier provides audible signals.

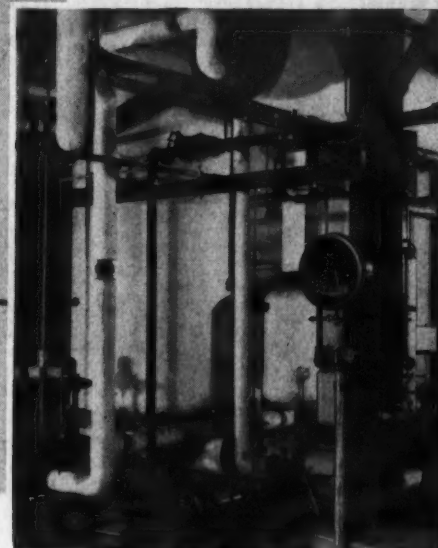
Source: Product of Precision Radiation Instruments, Inc., Dept. CP, 5478 Wilshire Blvd., Los Angeles 36, Calif. . . . or for more information check CP 7140 on handy form, pages 2 and 3.

AUTOMATIC EVAPORATOR CONTROL

raises quality . . . lowers cost



Promising to pay for itself in less than a year through new, over-all economies, this fully automatic Foxboro Cabinet Control System is giving precise, round-the-clock operation of Zaremba Evaporators at the American Thread Company's Kerr Mill, Fall River, Mass. At right — on the floor below, a Foxboro Indicator transmits thin liquor flow measurement to cabinet-mounted recorder.



A New Opportunity to Modernize Another Important Chemical Process

Accurate, coordinated control of variables, by means of this Foxboro development, improves evaporating efficiency four ways: (1) it increases evaporator capacity, saving time and money; (2) it releases manpower from purely routine duties; (3) it eliminates the inaccuracies of spot sampling; (4) it assures uniformly concentrated end-product.

* If you have, or are planning a process involving evaporation, why not investigate the advantages offered by fully automatic Foxboro control? Ask your nearby Foxboro Field Engineer for further information, or write The Foxboro Company, 190 Neponset Ave., Foxboro, Mass., U. S. A. Branches in principal cities.

5 OUTSTANDING FUNCTIONS of the control system shown above

1. continuously records and controls by electronic comparison of solution's boiling point to boiling point of water at the same pressure . . . and automatically adjusts steam input as required. This is an original Foxboro system, known as "boiling point rise" control —
2. records steam flow and thin liquor flow —
3. records liquid level in thin and strong liquor storage tanks —
4. records chemical contamination in steam condensate and condenser hot water leaving evaporator . . . and —
5. automatically diverts these to sewer if contamination rises above safe limits.

FOXBORO

Keg. U. S. Pat. Off.

Process-Improving Controls FOR THE TEXTILE INDUSTRY

When inquiring check CP 7141 on handy form, pgs. 2-3

Now—Simpler, Faster, Automatic Titrations!

Automatic

Here's another new Beckman advancement in instrumentation—an instrument that runs your titrations for you. It's the Beckman Automatic Titrator—the instrument that makes accurate titrations more rapidly and conveniently than by manual methods.

SIMPLE OPERATION: In a series of titrations, simply fill the burette, place the sample in the beaker—and the Beckman Automatic Titrator takes over from there. Raising the beaker holder into position automatically starts the stirrer motor and begins delivering titrating solution into the sample.

A special circuit electrically anticipates the approaching end point, scaling down delivery of the titrating solution in progressively smaller increments to assure a highly accurate titration. When the end point is reached, delivery of the titrating solution stops and a light shows completion of the titration—all automatically and without attention from the operator.

Whether your laboratory is large or small the Beckman Automatic Titrator provides important advantages in your titrating operations...

It releases the technician during titration, enabling him to perform other operations

such as preparing samples, or calculating results.

- ▶ It eliminates the fatigue caused by close observation required in manual procedures.
- ▶ It gives objective, reproducible results... eliminates errors due to personal factors.
- ▶ It provides time-saving conveniences for sample handling.

A New Beckman Instrument

to save time and labor in your laboratory

For full details on this new Beckman instrument see your authorized Beckman dealer—or write direct. Beckman Instruments, National Technical Laboratories, South Pasadena 11, California.

Factory Service Branches:
NEW YORK — CHICAGO — LOS ANGELES

BECKMAN INSTRUMENTS
control modern industries

Beckman Instruments include: pH Meters and Electrodes — Spectrophotometers — Radioactivity Meters — Special Instruments

When inquiring check CP 7142 on handy form, pgs. 2-3

PERFORMS A WIDE VARIETY OF TITRATIONS—Neutralization, Oxidation-Reduction, Precipitation, Complex-Formation and other types.

NO SPECIAL TRAINING IS REQUIRED—rapid and accurate titrations can readily be performed without special skill or technique.

QUICK, SIMPLE OPERATION—completes many routine titrations in only 1-1½ minutes—even titrations to 0.1% accuracy in 2½ minutes or less. Change of sample is simple, rapid—a single motion raises, locates and secures new sample in operating position.

CONVENIENT, VERSATILE, ADAPTABLE—0° to 100° C temperature compensation... adjustable holder accommodates 10 ml to 400 ml beakers or similar vessels... instrument may be used with all standard burettes down to 5 ml... as many as four delivery units accommodated by single amplifier control unit... uses standard Beckman electrodes... electrode holders and delivery tip can be pivoted into any required position... ample provision for mounting heating devices or other special equipment.

ALSO A RELIABLE pH METER—the Beckman Automatic Titrator can also be used as an AC-powered pH meter to give accurate readings over the range 0 to 14 pH, as well as millivolt readings from -600 to +1400 mv.

PROCESS INSTRUMENTATION

Eliminates test inaccuracies, supplies its own power in moisture-testing...

built-in generator of tester provides uniform voltage at all hand-cranked speeds

Uses: Self-contained moisture tester for field or laboratory testing of oil-bearing seeds, small grains, organic and inorganic materials in a wide range of moisture contents and at widely variant temperatures. Speed and accuracy of measurement render instrument useful in processes where moisture content is a controlling factor.

Features: No storage batteries or outside power source. Eliminates test inaccuracies caused by voltage fluctuations in usual supply. No conversion tables needed. No waiting for temperatures of machine and sample to equalize. Positive control of sample-weight, volume, temperature and electrical supply. Tester is lightweight, rugged and fast.



Moisture tester

Description: Built-in generator furnishes correct voltage despite variations in hand-cranking speeds. Slip-clutch prevents incorrect rotation of generator.

Volume of tested sample is controlled to 1/1000" by simple, easily-read micrometer, with percentage moisture content of most materials can be read directly from dial.

Thermometer, housed in phosphorus bronze metal plate in unit, permits instant temperature-reading of test machine and sample. While relatively new in the U. S., Universal Moisture Tester has been used extensively in Canada for more than 10 years, manufacturer reports.

Source: Manufactured by Sheldrick Manufacturing Co., Upper Sandusky, O. Distributed by Burrows Equipment Co., Dept. CP, 1316 Sherman Ave., Evanston, Ill. . . or for more information check CP 7143 on handy form, pages 2 and 3.

Provides a vibration-free, non-magnetic mounting for delicate instruments...

mounting base absorbs frequencies as low as 10 cycles per second; accommodates loads to 40 lbs

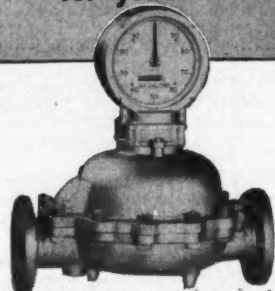
Uses: Vibration-absorbing mounting base for supporting delicate laboratory instruments of a mechanical, optical, or electrical nature. For loads up to 40 lbs.

Features: Mount absorbs frequencies as low as 10 cycles per second. Contains only non-ferrous materials—instruments which must be free from magnetic influence may be mounted on it.

Description: Instru-Mount consists essentially of a heavily reinforced concrete platform mounted on 4 Lord multi-plane shock-absorbing supports. For optimum vibration dampening, load on the unit should be in the range from 20 to 40 lbs. Instruments lighter than 20

Got a Corrosive Liquid Metering Problem?

Let NIAGARA CHEMICAL METERS Solve it for you!



Using the time-tested principles of Niagara Meter operation — but with stainless steel replacing bronze for corrosive-liquid measurement — Niagara Chemical Meters are built for liquids such as the following:

Sodium hydroxide	Soap
Sulphuric acid (95-100%)	
Fruit juices	Vegetable juices
Acetic Acid	Vinegar
Calcium hydroxide	
Calcium chloride	Alum

Send Coupon for complete data!

Please send me full information on use of your Niagara Chemical Meter for:

Liquid
 Temp.....°F. Pressure.....p.s.i.
 Flow rateg.p.m.
 Company
 By
 Address

BUFFALO METER CO.

2892 MAIN STREET
 BUFFALO, N. Y.

When inquiring check CP 7144 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

lbs can be accompanied by dead weight. When load exceeds 40 lbs, 2 Instru-Mounts may be employed side-by-side and connected with a plane surface — supported on top of each mount by suitable bearing surfaces.

Unit weighs 50 lbs and measures 22" long and 12" wide. Platform itself is 2½" thick, overall height is 3¼".

Apparatus set-ups can be constructed on platforms by using an 18" support rod. Rod fits the non-ferrous threaded insert located 1-3/4" from rear-center of platform.

Source: Product of the Eberbach & Son Company, Dept. CP, Ann Arbor, Mich. . . . or for more information check CP 7145 on handy form, pages 2 and 3.

Records ppm sulfur dioxide in air stream . . .

also records average concentration over ½-hr period; checks its own zero reading every 30 minutes



Instrument analyzes and keeps record of sulfur dioxide concentration in air

Uses: Analyzes and records sulfur dioxide concentration.

Features: In addition to keeping running record in parts per million, instrument records average concentration integrated over a half-hour period; automatically checks its zero reading every 30 minutes, and marks off each cubic foot of air sampled.

Changes in concentration of only a few tenths of a part per million can be detected.

Description: Usual range of the equipment is 0 to 5 ppm SO₂, a range which covers the concentrations of interest in pollution surveys.

Electrolytic conductivity is used as the means of measurement. Continuous sample of air is passed through an SO₂-absorbing solution, changing the electrolytic conductivity of the solution. A Micromax recorder is used.

Source: The Thomas Autometer is a product of Leeds & Northrup Company, Dept. CP, 4934 Stenton Ave., Philadelphia 44, Pa. . . . or for more information check CP 7146 on handy form, pages 2 and 3.

Interprets code for control of condensing units

Motor overload protection in connection with automatic control of refrigeration condensing units is theme of 5-page folder. Explains manual starters and points out how they may be used in conjunction with 2-pole control in full accordance with national and city electric codes.

Form No. 2824, issued by the Penn Electric Switch Co., Dept. CP, Goshen, Ind. When inquiring check CP 7147 on handy form, pages 2 and 3.



MASONEILAN

12,000 Series Liquid Level Controllers

are the choice of the Process Industries



Model 12,600

- Controller mechanisms are available for a wide variety of liquid level applications.
- Ten Controller mountings are available for all usual vessel requirements.
- Wide selection of type, material, chamber rating and level ranges.
- Level Indicator for use in servicing . . . transmitter for remote indication.
- Right or left hand instrument mounting . . . reversible in the field.
- Control action easily reversed.

Masoneilan 12,000 Series displacement-type level controllers provide positive, accurate liquid level control. They are available in a wide choice of standard ranges from 14 inches to 15 feet. They meet practically all requirements for liquid level control including interface service and remote level indication. Write for information.

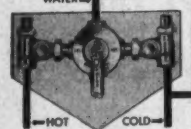


MASON-NEILAN REGULATOR CO.
 1203 Adams Street, Boston 24, Mass.

Sales Offices or Distributors in the Following Cities: New York • Syracuse • Chicago • St. Louis
 Philadelphia • Houston • Denver • Pittsburgh • Cleveland • Cincinnati • Tulsa • Atlanta
 Detroit • Los Angeles • San Francisco • Salt Lake City • El Paso • Boise • Albuquerque
 Charlotte, N. C. Masoneilan Regulator Company, Ltd., Montreal and Toronto

When inquiring check CP 7148 on handy form, pgs. 2-3

POWERS Control saves Hot Water!



Type HVE—10-FH
POWERS THERMOSTATIC
WATER MIXER

One mixer serves 5 or 6
washbowls (based on
water pressure at 45 lbs.)

Has Many Uses
X-Ray and Color Film Process-
ing • Shower Baths
Industrial Processes
Hospital Hydrotherapy

Other Controls with Capacities
up to 1000 gals. per min. (CWB)

Pays Back its Cost several times a year

Widely used safety device. Thermo-
statically mixes hot and cold water.
Delivery temperature remains con-
stant wherever set regardless of pres-
sure or temperature changes in water
supply lines. Failure of cold water
instantly and completely shuts off
delivery. Available with various
temperature ranges and capacities.

THE POWERS REGULATOR CO.
2756, Greenview Ave., Chicago 14, Ill.
Offices in 50 Cities



► Get Bulletin 358-H

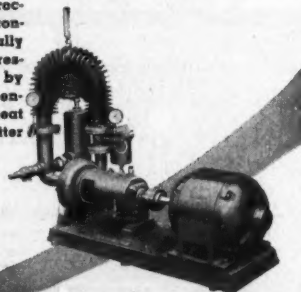
THERMOSTATIC WATER MIXER

When inquiring check CP 7149 on handy form, pgs. 2-3

SAVINGS IN PROCESS STEAM

In 66 industries Cochrane C-B
System of Condensate Drainage
Control has helped produce
quality goods at lower cost
through better steam usage. By
providing optimum heat at pro-
cess equipment, returning con-
densate to boiler at practically
the same temperature and pres-
sure as when it left, and by
draining condensate free of en-
trained air to boiler without heat
loss, it has resulted in better

products at substantial savings
in fuel, time and labor. Write
for Publication 3250 and you
will get some profitable ideas
on how to get more out of your
process steam.



COCHRANE

GB

SYSTEM OF CONDENSATE DRAINAGE CONTROL

COCHRANE CORPORATION

3162 N. 17th Street, Philadelphia 32, Pa.

In Canada: Canadian General Electric Co., Ltd. Toronto

Please send me a copy of your Publication No. 3250 on Cochrane C-B System of Condensate Drainage Control

Name
Firm
Address
City Zone State

When inquiring check CP 7150 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

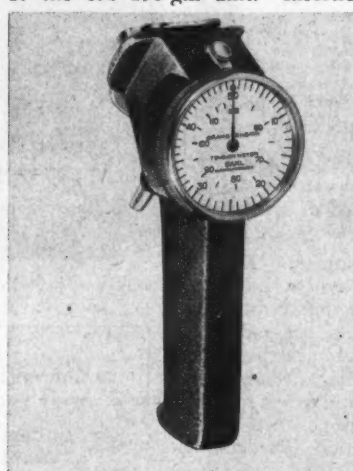
Sensitivity of tension meter double that of old one . . .

model for use to 125 grams features quick insertion,
steady readings free from oscillation

Uses: Quick tension measurements of all yarns, in-
cluding nylon and rayon, and on machines such as
warpers, winders, slashers and for winding elastic
threads, checking shuttle tension, etc.

Also employed for tension measurements on wire used
for galvanometer coils, ammeter coils, radio tubes, in-
candescent lamps, etc.

Features: This 125-gm model has twice the sensitivity
of the old 250-gm unit. Insertion is quick, even in



Dial of tension meter covers range of
0 to 125 grams

limited spaces. Be-
cause yarn con-
traction is negligi-
ble, gentle inser-
tion and release are
assured. Steady
readings are ob-
tained on quickly
traversing machin-
ery such as quill
winders.

Description:

Readings are taken
through a transpar-
ent flywheel. Meter
is dynamically cali-
brated under actual
performance condi-
tions. Permanently
calibrated spring is
always at rest when
not in use.

On first revolution of dial, values up to 50 grams are
read on black figures. On second revolution, values
from 50 to 125 grams are read on red figures. No ad-
justments are necessary when switching from high to
low scale.

Special pulleys recessed in trigger mechanism guide the
yarn into position so that meter can be inserted blind
and no yarn can get caught behind roller. No "wig-
gling-in" is necessary. Ball bearings are used through-
out.

Source: Tensiometer is made by Saxl Instrument
Company, Dept. CP, Harvard, Mass. . . or for more
information check CP 7151 on handy form, pages 2 and 3.

Speeds calibration of thermometers and thermocouples . . .

simple apparatus checks instruments by immersion
in fusing, standard, pure materials

Uses: Checking calibration of thermometers and
thermocouples.

Features: Accurate, quick and convenient.

Description: Checking is performed by immersing
thermometer or thermocouple in bath of a pure molten
material, whose melting point is known, and cooling to
fusion. Materials recommended have a sharp melting
point. A variety of them, with melting points ranging
up to that of pure copper, are available.

Apparatus consists of an electric furnace stand, 7" high
and 4" diameter, containing a central quartz well, 1-3/4"
ID. Well is insulated with infusorial earth. A 1 1/2"
OD quartz tube, closed at the bottom and provided with



PROMPT DELIVERY

ON TAYLOR

MERCURY FLOW METERS

WITHIN six weeks of your
order we can ship the new, ac-
curate, rugged Taylor 1500 Mercury
Flow Meters. Perfect wherever you
need something better than present
differential pressure measuring in-
struments. Non-sticking "Teflon"
bearings and precision-ground shaft
"float" great power to the pen.

Other features:

1. High Accuracy . . . Inherent straight-line calibration.
2. Positive Actuation . . . High energy output. (a) Big 3 3/4" float. (b) Long float travel—1". (c) Simple lever system. (d) Teflon in pressure-tight bearing surfaces for efficient use of power. (e) Jewelled thrust bearing.
3. Dependable Performance: (a) Submerged check valves for positive shut-off. (b) Unique damping valve adjustable under pressure without leakage. (c) Plenty of room in mercury chambers for surges or pulsating flows. (d) Teflon holds pressure, gives long service.
4. Great Adaptability: (a) 6 interchangeable range tubes 10", 20", 50", 100", 200" and 400" of water. (b) Tubes easily changed in field. (c) Both side and top pressure connections. (d) 2 Manometers can be mounted on back of single case for recording 2 flows or for ratio-flow control.
5. Easy Maintenance: (a) Easy to reach float and lever arm for calibration. (b) Entire pressure-tight bearing easily replaced at low cost. Ask your Taylor Field Engineer! Or write for Catalog 98175.

Taylor Instrument Companies, Rochester, N. Y., or
Toronto, Canada. Instruments for indicating, recording and
controlling temperature, pressure, humidity, flow and liquid level.

When inquiring check CP 7152 on handy form, pgs. 2-3

Useful Throughout the Plant



Here is a sturdy, portable pyrometer that's built for tough pro-
duction line service—yet is as accurate as finest laboratory
instruments. It makes possible precise temperature measure-
ment throughout the plant . . . wherever heat determination is a
problem. The Type 1500 offers these advantages:

Consistent Accuracy to within 3/4 of one per cent full scale under
almost all variable conditions. A full range of Alnor thermocouples is
available for best results on any type of surface.

Direct Reading scale face is easily understood. No conversion tables
necessary. Ten scale ranges from 0-400° to 0-3000°F. Equivalent
Centigrade scales available at no extra cost.

Compact Size—6 1/2" x 6" x 3", light weight makes this pyrometer
highly portable and easy to use. Write today for details and prices.

ILLINOIS TESTING LABORATORIES, INC.

Room 504, 420 N. LaSalle Street, Chicago 10, Illinois

Alnor

PRECISION INSTRUMENTS
FOR EVERY INDUSTRY

When inquiring check CP 7153 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

a suitable heater winding, is suspended in the well. It can be easily removed from well. Terminals of heater winding are secured to connection block.

Material to be melted is placed in the quartz tube and is heated. After melting, power is turned off and cooling commences. At the fusion point, temperature remains constant for a time, so the point is unmistakable.

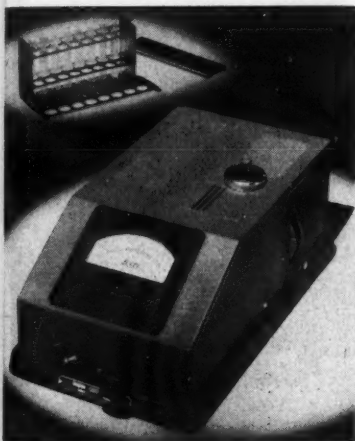
Source: Type SB1 temperature standard is a product of Paul G. Weiller, Dept. CP, 95 Broad St., New York 4, N. Y. . . or for more information check CP 7154 on handy form, pages 2 and 3.

Colorimetric analysis reduces routine lab work . . .

rapid, easy-to-operate colorimeter has a functional error less than 0.1%

Uses: Routine analyses in industries dealing with soils and fertilizer, electroplating, ferrous and non-ferrous metallurgy, dye-stuffs, die-casting, glass, tanning, vegetable and mineral oils, etc.

Features: Provides the high accuracy of colorimetric absorption analysis. Inherent functional error of instrument is less than 0.1%. Rapid, simple operation; single control for all adjustments. Different workers obtain identical readings on same specimen, even when readings are made on different instruments.



Analytical instrument provides quick method of colorimetric absorption determinations

Description: Colorimetric analyses are made as follows: (1) absorption cell containing solution of zero concentration is placed into Photometer, and needle is set at zero; (2) absorption cell is replaced with cell containing unknown, and reading is taken; (3) concentration of unknown is found in calibration table.

ing is taken; (3) concentration of unknown is found in calibration table.

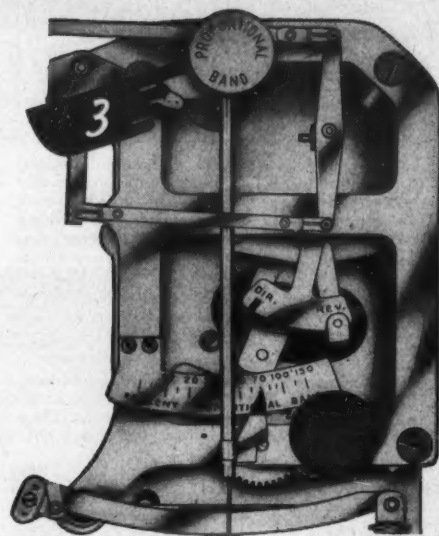
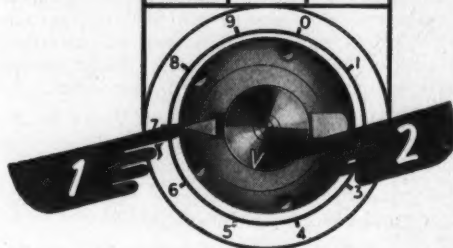
Accuracy of instrument is high because of careful matching of the photoelectric cell and microammeter, resulting in strict linearity of current vs light energy.

High selectivity over entire visible spectrum. Each instrument is equipped with set of 10 compound-compensating glass filters. These filters are mounted in a plastic disc which rotates them within the instrument. Two blank spaces are for holding filters for special work. Each filter and filter element is controlled in production and matched to produce identical transmission curves.

Unit is a single-cell, line-operated instrument, but can be specially adapted to 6-volt DC operation. Complete with 4 absorption cells, one sealed H₂O absorption cell, plastic insert, dust cover and handbook.

Source: E. Leitz, Inc., Dept. CP, 304 Hudson St., New York 13, N. Y., is the maker . . . or for more information check CP 7155 on handy form, pages 2 and 3.

DERIVATIVE TIME	SCALE SETTING	RESET RATE
0	0	0
.1	1	.03
.15	2	.05
.25	3	.08
.40	4	.12
.75	5	.18
1.20	6	.25
2.00	7	.35
3.00	8	.50
5.00	9	.75



if you use ... or plan to use ... automatic control instruments

you should investigate

these **THREE EXCLUSIVE ADVANTAGES** you get in

BRISTOL series 500 air-operated controllers

1. Reset Rate . . .
2. Derivative Time . . .
3. Proportional Band . . .

ACCURATELY
CALIBRATED
AND
EXACTLY
REPRODUCIBLE

the original—eliminates the cut-and-try method of arriving at the original setting—saves hours by cutting down on shut-down time.

Accurate reproducibility is only one of the many advantages you get in Series 500 Air-Operated Controllers which exemplifies the outstanding instrument engineering Bristol puts into its complete new line of Series 500 recording and controlling instruments—products of over 60 years of instrument experience.

Write for new Bulletin A120 on Series 500 Air-Operated Controllers. THE BRISTOL COMPANY, 141 Bristol Road, Waterbury 20, Conn.

The reset scale is calibrated in actual reset rate. The proportional band scale is graduated in percent of proportional band. The derivative scale is calibrated directly in minutes.

This makes possible the exact duplication of controller adjustments for any process throughout a national organization.

It also makes possible the replacement of controllers on a process with full assurance that such replacements will exactly duplicate the performance of



BRISTOL

Engineers process control for
better products and profits

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

When inquiring check CP 7156 on handy form, pgs. 2-3

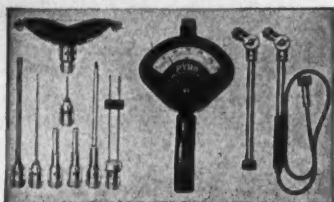
■ Accurate Temperatures AT A GLANCE WITH THE SIMPLIFIED PYRO OPTICAL PYROMETER



Any operator can quickly determine temperatures on minute spots, fast-moving objects and smallest streams. Completely self-contained. No calibration charts or accessories needed. An accurate, direct reading Pyrometer that pays for itself by helping prevent spoilage. Weighs 3 lbs. Available in 5 temperature ranges (1400° F. to 7500° F.). Ask for free Catalog No. 80.

8 Instruments in One

The NEW PYRO Pyrometer handles— all surface and sub-surface temperature measuring jobs. Has 8 types of thermocouples; all interchangeable in seconds with no recalibration or adjustment. Automatic cold end com-



pensator. Shock, moisture and dust-proof. Accurate, big 4 1/4" indicator. Available in 5 temperature ranges.

ASK FOR FREE
CATALOG No. 165

The Pyrometer Instrument Company

New Plant and Laboratory BERGENFIELD 28, NEW JERSEY

Manufacturers of Pyro Optical, Radiation, Immersion and Surface Pyrometers for over 25 years

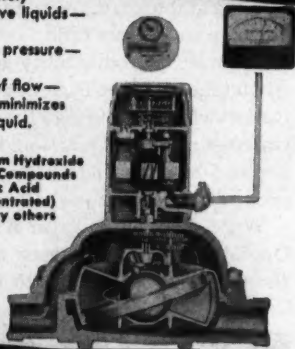
When inquiring check CP 7157 on handy form, pgs. 2-3

CORRECT for CORROSIVES* HAYS VERIFLOW METERS AND VERITROL

Hays Veriflow Meter accurately measures the flow of corrosive liquids— registers total gallonage— indicates rate of flow under pressure— reveals losses instantly. Hays Veritrol controls rate of flow— reduces losses from waste— minimizes spoilage— saves time and liquid.

* Acetic Acid
Calcium Compounds
Carbolic Acid
Fruit and Vegetable Juices
Potassium Hydroxide
Sodium Compounds
Sulphuric Acid (Concentrated)
and many others

Complete description of the Hays Veriflow Meter and Veritrol is contained in Bulletin 48-766. Send for your copy, today.



THE HAYS CORPORATION

MICHIGAN CITY 12, IND., U.S.A.

THE HAYS CORPORATION

Michigan City 12, Indiana

Please send me Bulletin 48-766 on the Hays Veriflow Meter and Hays Veritrol.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

When inquiring check CP 7158 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

Counts rate of gamma rays in presence of 2.5 MEV beta rays . . .

meter calibrated in mr/hr and CPM; plug-in type Geiger tube detects beta rays as low as 0.3 MEV

Uses: Count-rate meter for monitoring and determining radiation dosages. Possible uses include checking hands, bench tops, coats, etc., in laboratory for contamination; locating relatively small amounts of spilled radiochemicals; checking radiation emitted from isotope shipments to determine necessary safety precautions; determining adequacy of shielding of stored radioisotopes; and detecting radioactive ore in the field. Instrument detects gamma radiation and medium and high energy beta radiation.

Features: Beta rays as low as 0.3 MEV can be detected by plug-in type Geiger tube which has a thin glass wall section of only 30 mg/cm².

Probe shield is waterproof and detachable. Case is weatherproof for use under severe weather conditions.

Description: Beta Gamma survey meter is portable and battery operated. Meter has two sets of scale ranges, for readings in both milliroentgens per hour (mr/hr) and counts per minute (CPM). Four full scale ranges of 0.02, 0.2, 2.0, and 20 mr/hr are provided. The corresponding full scale CPM ranges are 100, 1000, 10,000 and 100,000 CPM.



Instrument can be held by handle or with plastic shoulder straps

Time constant associated with the meter response is automatically changed when the scale range is selected to insure the fastest possible readings consistent with reasonable statistical fluctuation. Meter drift during operation averages not more than .05% per hour.

Probe shield has a wall of 1300 mg/cm² to permit the separate measurement of gamma radiation in the presence of beta radiation with maximum energies up to 2.5 MEV. With the probe shield removed, the Geiger tube is protected by a metal cage with 53% open area.

Battery life of 240 hours for continuous duty at 70°F can be expected. Batteries supplying high voltage for the Geiger tube need be replaced only about once each year.

Phone jack on front panel permits connection of high impedance headphones for audible indication of the counting rate.

Source: Tracerlab, Inc. Dept. CP, 55 Oliver St., Boston 10, Mass. . . . or for more information check CP 7159 on handy form, pages 2 and 3.

Temperature, humidity can be constants, variables in test apparatus . . .

for combinations of temps between 40 and 160° F, and relative humidities between 20 and 98%

Uses: Apparatus may be employed for programmed testing of materials at any temperature between 40 and 160° F, and any relative humidity between 20 to 93% (lower curve limit) and 97 to 98% (upper curve limit).

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pH INDICATORS and pH RECORDERS single — and multi-point

In addition to portable pH Meters, Cambridge makes Direct-Reading pH Indicators and Recorders for permanent installation. They are line-operated, accurate and provide trouble-free performance. The Recorder or Indicator may be located at any reasonable distance from one or several sampling points. The Glass Electrodes are placed in the vapor-tight housings of the clog-free sampling chambers.



Direct Reading pH Indicator Control Panel

Send for Bulletin No. 910 T.

CAMBRIDGE pH EQUIPMENT

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When inquiring check CP 7160 on handy form, pgs. 2-3



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CHEMICAL PROCESSING



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HIGH TEMPERATURE "UNIT-PACK-AGE" ELECTRIC BOX and MUFFLE FURNACES for melting, sintering, heat treating, ignitions, etc.

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BURRELL TUBE FURNACE

HIGH TEMPERATURE "UNIT-PACK-AGE" ELECTRIC TUBE FURNACES for determination of carbon or sulfur by combustion and for experimental or production purposes.

Write for bulletin 310.



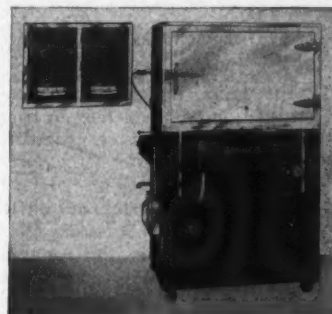
When inquiring check CP 7162 on handy form, pages 2-3

APRIL, 1950

PROCESS INSTRUMENTATION

Four types of control: 1) constant humidity and constant dry-bulb temp, 2) constant humidity and varying dry-bulb temp, 3) varying humidity and constant dry-bulb temp, and 4) varying humidity and varying dry-bulb temp.

Features: Work chamber is continuously supplied with circulating air of precisely-controlled humidity and temperature, maintained constant or varying according to a predetermined time schedule. Includes heating and refrigerating systems of large capacity.



Humidity-temperature test apparatus consist of work chamber, air-conditioner, and control system

Description: As illustrated, test apparatus consists of a work chamber, an air-conditioning unit, and a special control system. Work chamber has

approximately 9 cubic feet of volume; interior dimensions are: 17½ x 36 x 22" high. Interior is of polished stainless steel; walls are insulated with 3" of cork. An outer, insulated stainless steel door and an inner glass door are provided. One adjustable stainless, perforated shelf is furnished.

Air conditioning unit provides 13 complete air changes per minute in the work chamber (when empty). Three heaters are located in air conditioner: a continuous 750-watt and a controlled 300-watt for dry-bulb heating, and a controlled 2500-watt for heating the spray water. Includes a 1-hp refrigerating compressor.

Overall dimensions of work chamber mounted on air conditioner are 51" wide, 41" deep (front to back), and 72" high. Unit, thus, is easily moved about on its rubber-tired casters.

Several dry-bulb and dew-point temperature controls (both program and bimetal regulator types) are available; 1 uncut disc for each program controller is furnished for forming into timing cams. Accessory equipment includes extra shelving, angle-iron frame for stationary mounting, and top cover for air conditioner.

Additional information on this test apparatus is available in manufacturer's Bulletin 2176.

Source: Product of the American Instrument Company, Inc., Dept. CP, 8030-8050 Georgia Ave., Silver Spring, Md. . . . or for more information check CP 7163 on handy form, pages 2 and 3.

Turn to Page 6

for an announcement of interest to

- Engineers
- Technicians
- Chemists
- Lab Workers

— and Other Readers of This Magazine

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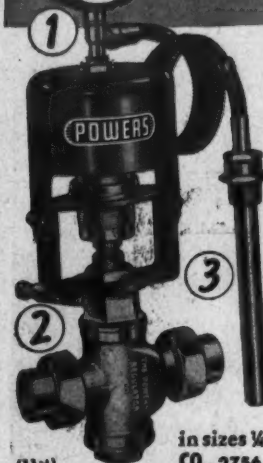
Please send full details and prices ☐ Have salesman call ☐

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When inquiring check CP 7166 on handy form, pgs. 2-3

Page 52

PROCESS INSTRUMENTATION

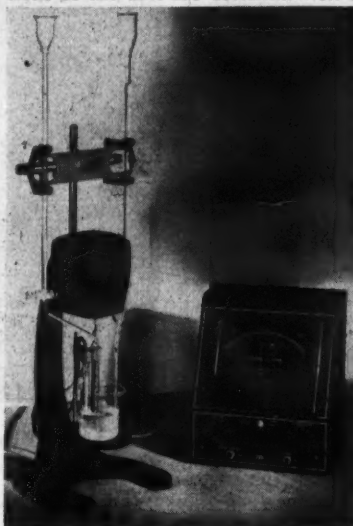
Titration-pH unit operates on AC line . . .

fast, accurate instrument is for titrations, control of reactions, and general pH measurements

Uses: Titration; control of neutralizations, oxidation-reduction reactions and precipitations; and general pH measurements.

Features: Line-operated instrument is fast and accurate.

Description: Among the more important applications of the unit are determination of manganese in iron and steel; electro-



Titration-pH unit operates on AC line

metric measurement of pH of aqueous or partly non-aqueous solutions; test for acid and base numbers of petroleum products; sampling and chemical analysis of inorganic alkaline detergents; test for dissolved oxygen in industrial waters; and saponification number of petroleum products.

Suggested for use in ferrous analysis, and for determination of the following components: arsenic, chromium, copper, manganese, nickel, nitrogen, phosphorous, selenium, sulfur, tin and vanadium. Aluminum may be studied for content of calcium, chromium, copper, iron, magnesium, manganese and tin.

Source: Titration-pH unit is a product of Central Scientific Company, Dept. CP, 1700 Irving Park Rd., Chicago 13, Ill. . . or for more information check CP 7167 on handy form, pages 2 and 3.

**Temperatures above 1000°F can
be measured, controlled by
pneumatic instruments . . .**

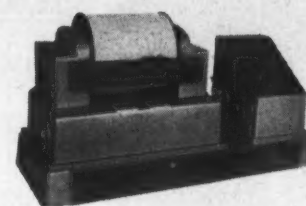
mercury thermal system, with improved Bourdon spring, used with standard instruments

Uses: Used with manufacturer's indicating, recording or controlling instruments, mercury thermal system is primarily for temperatures above 1000°F. Used for measuring and recording temperatures in gas-fired ovens, annealing ovens, high-temperature blanchers, of exhaust gases, etc.

Features: Newly designed Bourdon spring needs only half the mercury volume change previously required to move pointer across regular scale. Spring is made to give maximum output energy, assuring optimum accuracy and pointer stability.

Uniformly graduated charts may be used because mercury has uniform coefficient of expansion. This promotes accuracy and ease in reading over entire scale range.

Description: Thermal element (bulb) is constructed of Type 347 stainless steel for endurance at high tem-



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The Model 21 is the first universal double beam recording spectrophotometer . . . the first commercially available instrument that meets the demands for speed and accuracy of the analytical laboratory, and the need for high resolution and sensitivity of the structural chemist. Containing many improvements, the Model 21 can be used over a greater range of applications than any other type of infrared spectrometer. Write today for complete information.

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When inquiring check CP 7168 on handy form, pgs. 2-3

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CHEMICAL PROCESSING



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Write today for Bulletin DB-221 for a full description of this New Coleman contribution to laboratory accuracy.

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When inquiring check CP 7170 on handy form, pgs. 2-3



- Accurate velocity readings, automatically averaged over a 3" dia. free area, instantly indicated in feet per minute.
- Extension handle facilitates positioning of instrument away from the observer for readings in hard-to-reach locations, or where the observer's body would interfere with the normal air movement.
- Unique scale lock makes possible to retain scale reading when desired until the lock is released—an indispensable feature where extension rod is used to position instrument away from the observer.
- Magnetic damper steadies scale movement and levels out insignificant variations in air velocities, thus giving a true average velocity reading.
- Convenient zero adjustment by means of adjusting screw in center of front grill. Coin may be used to turn screw.
- Leather case is furnished as standard equipment for added protection when the instrument is not in use and for convenience when carrying it in the pocket.

Either of two styles: One with a scale of 0-1000 ft./min., and the other with a double scale of 0-3000 ft./min. and 0-35 miles per hour.

Write for
LEAFLET
768

BACHARACH Industrial Instrument Co.
7000 BENNETT STREET • PITTSBURGH 8, PA.

When inquiring check CP 7171 on handy form, pgs. 2-3

APRIL, 1950

PROCESS INSTRUMENTATION

peratures. Diameter is $\frac{3}{4}$ "; length depends upon range span selected. Range of 200-1200°F requires a bulb only 3-3/16" long. Six different styles of bulbs are made.

Case temperatures are compensated for by a compensating link attached to Bourdon spring lug of system.

Manufacturer's temperature-compensating "Accuratus" tubing, used in all of his mercury systems, is employed in this system. Tubing is 18-8 stainless steel for corrosion-resistance, flexibility and ability to withstand hard usage. Inconel "Accuratus" tubing is also available.

Range spans of 1000, 600 and 400°F, or equivalent in Centigrade, are offered. No system is furnished in which the range starts at temperatures above 700°F.

Source: The 1200°F mercury thermal system is a development of Taylor Instrument Companies, Dept. CP, 95 Ames St., Rochester 1, N.Y. . . . or for more information check CP 7172 on handy form, pages 2 and 3.

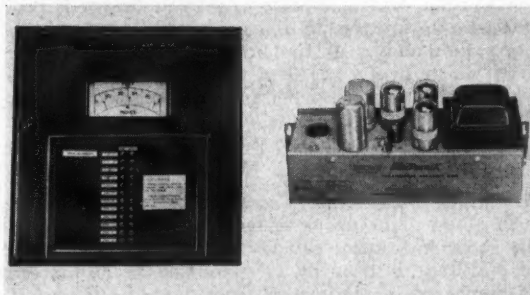
Electronic system indicates tank levels at remote location . . .

wear of instrument parts is at minimum; errors due to varying circuit resistance are eliminated

Uses: Remote gauging of high- and low-pressure storage tanks.

Features: When receiver circuit is at balance point, no current flows in sliding contacts . . . thus, errors due to varying resistance are eliminated. Mechanism operates only when there is a change in emf; hence, wear is almost negligible.

Description: Gauging system incorporates the Brown "Continuous Balance" Elektronik Precision Indicator. This unit utilizes the balanced Wheatstone bridge principle in conjunction with potentiometers. Measuring circuit is energized by 6.3 volts, reduced from 110-volt AC supply. Because of the low voltage, small-gauge wire may be used.



Panel of remote tank gauge is at left. Electronic receiver is at right

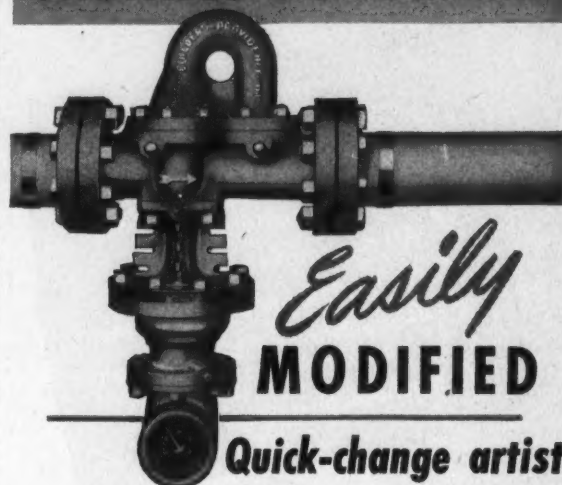
Four leads are required for each tank to be gauged. No field relays or junction boxes are needed because each transmitter is directly connected to receiver.

Indicator uses a vacuum tube system and a simple reversing motor. Gears, levers, cams, galvanometers, suspensions and other mechanisms are not employed.

This electronic gauging system is adaptable for use with any of manufacturer's standard automatic tank gauges.

Source: Product of Shand & Jurs Company, Dept. CP, Carlton & Jurs Sts., Berkeley, Calif. . . . or for more information check CP 7173 on handy form, pages 2 and 3.

ANOTHER IMPORTANT FEATURE OF SHUNTFLO STEAM METER



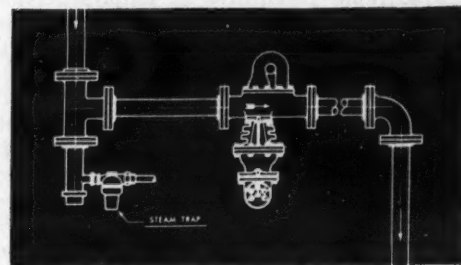
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Builders Shuntflo Steam Meter is easily modified for change in capacity. Simply remove the top cover, install a new orifice plate, and replace the cover . . . that's how easy it is to change from one capacity range to another. Many companies buy Shuntflo Meters with a complete set of orifice plates for checking steam, air, or gas consumption

by individual machines, processes, departments, etc. Meters soon pay for themselves—they show accurately (within $\pm 2\%$) where the commodity is being consumed and how much . . . directly in pounds of steam, or cubic feet of air or gas. For engineering information and Bulletins 400-F1 and 400-F2, address Builders-Providence, Inc. (Division of Builders Iron Foundry), Providence 1, Rhode Island.



Method of installing Shuntflo Meter in horizontal offset of vertical main

Builders makes a complete line of flow meters and controllers for liquids, steam, air, gas, and dry materials . . . mechanical and differential . . . including The Venturi Meter and Chlorinizers (chlorine gas feeders).

BUILDERS-PROVIDENCE
Instruments

When inquiring check CP 7174 on handy form, pgs. 2-3

Any of these Proven Operators

- ✓ Westinghouse, Bendix Westinghouse
- ✓ Barber-Colman, Cutler-Hammer and Philadelphia Limited torque motors
- ✓ All pneumatic motors
- ✓ Air loaded pneumatic motors
- ✓ All double and single action air cylinders
- ✓ Mechanical springs



may be used with HILLS-McCANNa Diaphragm Valves for automatic or remote operation

The extreme flexibility of Hills-McCanna diaphragm valves makes it possible to satisfy virtually any preference or requirement in the use of mechanical operators. All of the operators listed above plus others are applied to standard Hills-McCanna sliding stem valves to provide complete units that utilize your existing operating methods.

Designed especially for conveying "hard-to-handle" fluids, Hills-McCanna diaphragm valves range in size from $\frac{3}{8}$ " through 14"; pressures up to 150 psi; temperatures to 180°F. (some applications to 220°F.). Write for complete information, HILLS-McCANNa CO., 2370 West Nelson Ave., Chicago 18, Illinois.

HILLS-McCANNa

Saunders patent diaphragm valves

Proportioning Pumps
Food-Feed Lubricators • Magnesium Alloy Castings

When inquiring check CP 7175 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

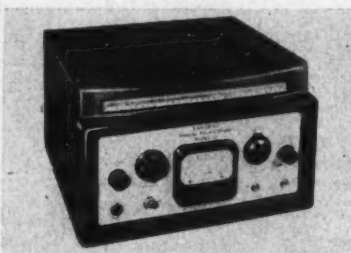
Polarographic analysis easy with manually operated instrument . . .

similar to recording type instrument, Polarograph fits many applications where such unit is not needed

Uses: Intended for certain applications of polarography where a recording instrument is not required. Examples are:

(1) Routine analyses where only one substance is determined and where step shape approximates a pure form. This is characteristic of reversible reactions involving simple ions in fairly substantial concentrations. Step

height is measured as the difference between two points, one on the residual current plateau and one on the diffusion current plateau.



Manually operated Polarograph is relatively simple to operate

(2) The manual instrument may be used to release a recording type instrument for other duties, in

cases where the latter instrument is being employed for running several determinations.

Features: Relatively non-technical personnel can operate instrument with speed. Manually operated instrument has essentially the same design and construction as the recording type.

Description: The Model III Polarograph provides facilities for incremental application of voltage across a dropping mercury electrode cell, and for indicating the resultant current passing through cell.

Voltage applied to cell is adjusted by a 10-turn helical potentiometer bridge accurate to 0.1%. Bridge is provided with an integrating dial graduated in units representing thousandths of the bridge span, thus reading directly in millivolts per span volt. Single-turn potentiometer with power switch is used to select desired voltage across bridge. Panel-mounted voltmeter, with 1.0% of full scale accuracy, indicates voltage so established.

Cell current is registered by sensitive galvanometer from which a line light image is transmitted to translucent scale above instrument panel. Scale extends almost the full width of instrument, is graduated in millimeters and numbered in centimeters from 0 on the left to 30 on the right. There are 15 extra millimeter divisions to left of zero for adjustment of galvanometer zero setting.

Scale is a true arc of the circle whose radius is the length of light path from galvanometer. This construction eliminates tangent error and other discrepancies inherent in the ordinary flat scale. Overall sensitivity of current measurement is adjusted by a 10-position Ayrton galvanometer shunt with shunt ratio range of 1:1 to 1000:1. Single 10-turn helical potentiometer serves both for up-scale and downscale compensation and for adjustment of galvanometer zero position. This control may be removed from circuit by means of a toggle switch.

Also included are two other toggle switches and a ter-

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210 Porter St., Stoughton, Mass.

When inquiring check CP 7177 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

minal for connection of cell leads. One switch selects dropping electrode polarity; the other turns on and off the power to the galvanometer lamp.

Instrument is mounted on cast aluminum base and is enclosed in black enamel sheet metal housing with hinged top. All controls are mounted on polished aluminum panel set in front casting. Measures 10 x 16-3/4 x 17" and weighs 32 lbs. Consumes less than 5 watts. Electrolysis and compensation power is furnished by 3 dry cells. Galvanometer lamp operates through transformer from a 115-volt, 50 or 60 cycle line. Galvanometer sensitivity is approximately 0.006 microamperes/mm.

Source: Maker is E. H. Sargent & Co., Dept. CP, 4647 W. Foster Ave., Chicago 30, Ill. . . . or for more information check CP 7178 on handy form, pages 2 & 3.

Gives continuous indication of density of gases in flues . . .

smoke density indicator sounds alarm when combustion is inefficient, or smoke causes nuisance

Uses: For continuous indication (in boiler room) of density of gases passing through furnace flues. Sounds alarm when either smoke or air are sufficiently excessive to cause inefficient combustion or smoke nuisance. For general industrial application.

Features: Provides overall check on combustion efficiency. Construction is simple; requires negligible maintenance. Supplied in dust-proof housing. Can be used in conjunction with recording equipment for continuously recording smoke density.



Smoke density indicator

Description: Type 2A10C smoke density indicator consists of 3 pieces: 1) photoelectric control—including a phototube and electronic amplifier which operate a dual relay system and indicating meter in the Densometer; 2) light source; and 3) Densometer. Photoelectric control and light source

are located on opposite sides of flue or breeching. Light beam from light source projects from an opening in the flue to the eye of the control. Densometer is located in boiler room.

Sensitivity adjustment of photoelectric control is set to compensate for flue dimensions and other variables. Smoke density is indicated at established Ringelmann values. Instrument requires 115 v AC power supply.

Additional information on Type 2A10C is available in Bulletin No. PE-4710.

Source: Photoswitch Incorporated, Dept. CP, 77 Broadway, Cambridge 42, Mass. . . . or for more information check CP 7179 on handy form, pages 2 and 3.

To which many have made notable contribution...



Note the extra illumination with slanted front and back. New die-cast all-metal case... This the Chain-o-matic AB-2. Capacity 200 gm; Sensitivity 1/20 mg.

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Born of a new concept of balance engineering... crafted of newly discovered alloys... sparked by a new blending of the instrument maker's art and of functional design... the new Christian Becker laboratory balances set new standards in the field of precision weighing. New standards of unchanging accuracy... new standards of durability... new standards of convenience and ease of operation. No scientist or research man should be content with less. Sample balances now at your Laboratory Supply House which has complete specifications and prices of all models.

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When inquiring check CP 7180 on handy form, pgs. 2-3

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SPECIFICATIONS

FOR Superior PROTECTIVE COATINGS

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AB11-4

These resins are suggested for use in a variety of protective and decorative coatings, including (air-dry and baking), floor and trim varnishes, utility enamels and baking coatings. For paint manufacturers who prefer cold-cutting, these resins are also offered in solution form.

For your specific problems write to: Department D5
Technical data and samples gladly furnished on request.

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When inquiring check CP 7181 on handy form, pgs. 2-3

Briefs . . .

Ethylene to ethylene oxide by catalytic oxidation

Results of experimental study of catalytic oxidation of ethylene to ethylene oxide are reported in 15-page article illustrated with 5 tables, 6 figures and bibliography.

Selection of catalyst support was thought to play an important part in securing satisfactory operating conditions. Selection and preparation of catalyst is discussed and described. Equipment is sketched and commented on.

Analytical methods are stated. Effects of temperature on conversion and selectivity are shown by graphs and a table. Also tabulated are effects of varying air-ethylene ratio and time of contact. ("Canadian Journal of Research", Nov., 1949, page 813)

Survey of economics of instrumentation

Survey of plant instrumentation covers position in regard to production, efficiency and required investment. Based on study of 8 chemical processing plants, study enumerates factors affecting cost of instrumentation.

Tables list operation being conducted, total plant investment, instrument cost, instrument cost as percentage of total investment, and sale price of product.

Comments are made on required personnel and future position of instrumentation. Article consists of 3 pages with 8 tables. ("Instruments", Jan., 1950, page 28)

Water vapor but not water can pass through fabric

Article tells of research work and laboratory and field testing involved in developing a coated fabric which will keep the wearer dry, yet permit water-vapor to escape.

Theory used in attack on the problem is presented. Properties desired are stated and tests for determination of them are commented on. Coating procedures as well as coating materials are discussed. 7 pages, 5 figures, 4 tables. ("Rubber Age", Jan., 1950, page 409)

Factors in selecting materials for centrifugal pumps

Conditions of service and nature of the liquids to be handled determine the most satisfactory materials for the construction of centrifugal pumps. Eight factors entering into consideration in such selections are tabulated in 2-page article.

Separate consideration is given to casings, impellers, wearing rings, shafts, shaft sleeves and glands. Materials used in three common types of pump fittings for parts in contact with liquids are tabulated. Article contains 3 figures and 1 table. ("Plant Engineering", Dec., 1949, page 37)

Effect of vacuum on efficiency of packed columns

Results of experimental study of fractionating columns packed with Raschig rings, McMahon saddles, Cannon perturbed packing, and Fenske helices are presented in 6-page article.

Apparatus and procedure used is described. Materials

CHEMICAL PROCESSING

from contemporary publications

Here's a quick look at interesting articles, appearing in other publications . . . as selected by Technical Editor, H. McCormack

studied were: ethyl alcohol, water at 95 mm mercury; *n*-decane-*trans*-decalin at 50, 20 and 10 mm mercury.

Properties of mixtures are tabulated. Hold-up in the columns using various packings is shown graphically. Efficiencies are tabulated for different rates.

Article includes 5 figures, 8 tables, bibliography. ("Industrial and Engineering Chemistry", Jan., 1950, page 77)

Determining Ignition temps of plastic materials

Equipment used and technique required to determine the flash and the autogenous-ignition temperatures of plastics are described in 14-page article.

Discusses determinations made on 27 different plastics. Includes complete descriptions of samples, tabulations of results. Article contains 4 tables, 7 figures. ("Journal of Research", National Bureau of Standards, Dec., 1949, page 591)

Revision in code for pressure piping

Six-page article discusses revisions being made in code for pressure piping. Personnel of the committee responsible for these revisions are listed. Code is to cover design, manufacture, fabrication, test, installation and operation of pressure piping systems.

Major change is that the revised code is written in either mandatory or permissive language rather than advisory. ("Heating, Piping and Air Conditioning", Jan., 1950, page 113)

Latent heats of vaporization from limited data

Equation for calculating latent heats of evaporation with accuracy sufficing for most engineering purposes is presented in 2-page article.

Equation is relatively simple, requires no reading of graphs and is adaptable to mathematical manipulation. Data required: one vapor pressure measurement and the critical pressure and temperature. Illustrated with 11 equations, 1 data table. ("Chemical Engineering Progress", Nov., 1949, page 675)

Evaluation of adhesion by ultra-sonic vibrations

Direct quantitative method for measuring adhesion of organic coatings to both metal and non-metal substrata is described in 5-page article.

Apparatus and procedure for making measurements are described. Ultra-sonic method promises to be readily applicable to many types of material other than those used in this study. Illustrated with 5 figures and 3 tables. ("Industrial and Engineering Chemistry", Oct., 1949, page 2334)

WeldELLS[®]

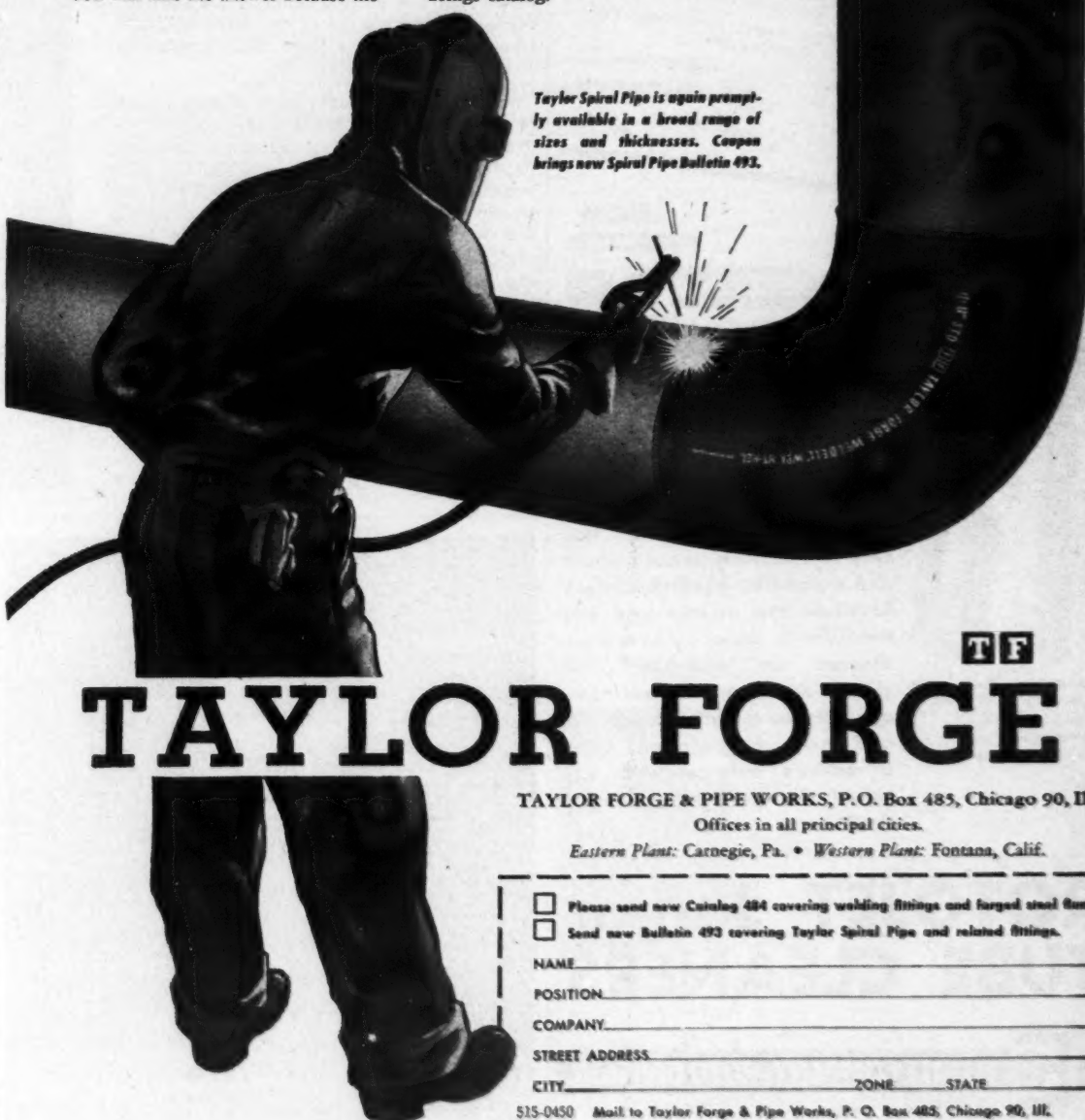
Whatever you seek on that next welded piping job...*speed...economy...piping for extreme conditions...piping to withstand corrosion...you will find the answer to it in piping welded the WeldELL way.*

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WeldELL line expresses the best of all we have learned in fifty years of intensive specialization in forged fittings for designed piping and pressure vessels.

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Taylor Spiral Pipe is again promptly available in a broad range of sizes and thicknesses. Coupon brings new Spiral Pipe Bulletin 493.

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When inquiring check CP 7182 on handy form, pgs. 2-3

Proven power and endurance for cleaning SMALL TUBES

Elliott Company - Roto Division
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On receipt of your miniature tube cleaning equipment, I was a bit dubious of its qualifications to carry out the job it had to do. It has cleaned 4,000 3/4" x 24" copper-nickel tubes, and has done this job well. All suspicions of its staying qualities have been removed.

I can heartily recommend this equipment. Thanking you.

Yours respectfully,

(Signed) Chief Engineer

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SECTION OF
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The secret of the power and endurance of the Rotojet Junior Tube Cleaner is its extreme simplicity of design and precision construction. It has only two moving parts, a shaft and a paddle. Positive contact between the paddle and the Rotocentric bore cylinder assures an undivided air stream and freedom from leakage. Its convenient size, speed, and ease of operation, offer a marked contrast with external cleaners costing many times more.

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ELLIOTT COMPANY-ROTO DIVISION

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Magnesium Anodes Continue the Fight Against Underground, Underwater Corrosion

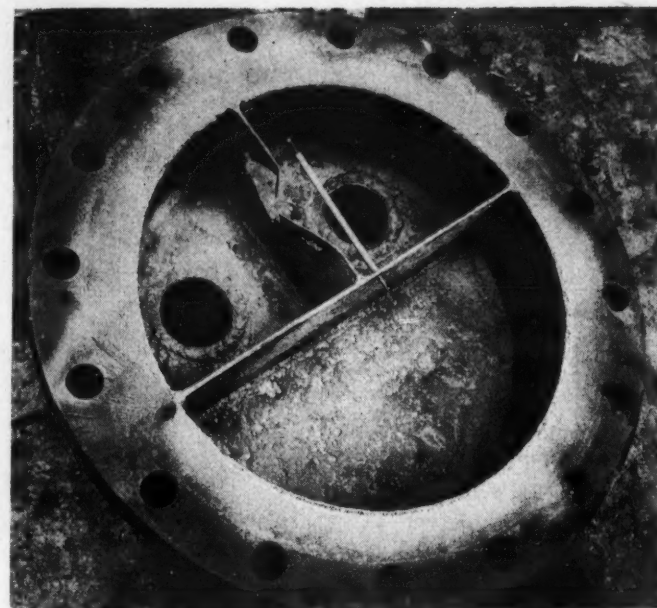
Several types provide protection on wide variety of coated or bare pipes, structures

CORROSION of underground and underwater metal surfaces each year accounts for estimated billions of dollars in damage. Pipelines, tanks, piers, piling, lead-sheath cable, tower footings, ship bottoms and water condensers are only some of the many pieces of equipment which undergo this highly destructive process.

The cost of replacement parts is only a small part of the story. Much money is spent in locating leaks, exposing them and replacing or repairing them. Then too, the loss of a valuable commodity through a small leak can amount to thousands of dollars before the leak is discovered and repaired. Some leaking products are known to destroy surrounding valuable crop lands and vegetation.

The action that takes place in much underground corrosion is like that in a short-circuited dry-cell battery, where the zinc casing (the anode) is gradually eaten away and the carbon in the center (the cathode) is not. Of course, current flows between the two through a conductive electrolyte.

Different parts of a pipe have differing com-



Cathodic protection with magnesium would have greatly reduced or entirely eliminated such corrosion in condenser

This type of anode can be lowered directly into hole. It is made into unit with backfill completely surrounding it. Anode is shown exposed here for illustration purposes



positions, some are covered with mill scale and some aren't, and the concentration of oxygen surrounding various parts is not the same. This leads to the possibility of setting up a difference in potential between two parts of the pipe.

Where there is a break in mill scale and an insufficiency of oxygen, iron begins to pass into the soil (electrolyte) as the Fe^{++} ion, much as the Zn^{++} ion passes into the electrolyte of the dry cell. Thus, the pipe at this point has an excess of electrons and begins to function as an anode.

The electrons flow along the pipe to a point (cathode) where there is mill scale and a large supply of surrounding oxygen, in a manner similar to the electron flow along the wire short-circuiting a dry cell. At this point, they combine with certain constituents in the soil to produce anions which gradually migrate to the anode, where they combine with the Fe^{++} to form a corrosion product. Thus, the process goes on continuously, slowly eating away the pipe at the anode.

Types of cathode protection

To mitigate this corrosion process, a method called cathodic protection is used. Just as the name implies, the method consists of making the pipe the cathode and connecting it to a metallic object, which acts as the anode, buried in the soil alongside the pipe. The action is similar to that described above; however the corrosion takes place at the "sacrificial" anode instead of at a point on the pipe.

Two types of these anodes are in common use — the galvanic and the electrolytic types. The galvanic type is made of a metal higher in the electrochemical series than the metal to be protected, so current flows automatically between it and pipe. The electrolytic anode, usually a mass of scrap iron or carbon, must be energized by an external DC voltage in order to act as an anode. Both types, because they corrode preferentially with respect to the pipe, must be replaced at intervals.

The magnesium galvanic anode is in widespread use. It is very high in the electrochemical series, providing a large storage capacity for electricity and a high driving voltage. When properly installed, 500-600 ampere-hours are available for every pound of magnesium consumed.

Galvanic anode types

Dowell Incorporated, a subsidiary of The Dow Chemical Company, markets these anodes in various types. Four types of standard cast anodes are made, having lives of 10-30 years at continuous anode current output of 0.090 amp. in soil or water with a resistivity of about 2,000 ohms per cubic centimeter. Three of these are furnished with a suitable length of lead wire for connecting to pipe.

The fourth has no lead wire but has a 3/4" pipe running through the center so the anode can be strung on a wire-line, and is for use in sea water and special applications. A special cast anode has a 4" x 4" D-shaped cross section and weighs 60 lbs. This type is used in large condensers, etc., where maximum life with minimum obstruction is desired.

For applications involving high soil resistivities, a flexible, cored ribbon anode is often employed. This design supplies current 3 to 7 times as fast, per lb. of magnesium, as the conventional cast anode.

To eliminate much of the work of installation of a cast anode, and to assure best results, (more about this later), a unit is made that contains a cast anode packed with a specially prepared, quick-wetting back-fill in a permeable cloth sack. The unit has a lead wire for attachment to pipe or other structure.

Installation

Location of anodes is largely dependent upon whether the pipe is bare or well coated. On bare pipe, where "throwing power" of anode is controlled by soil resistance, distribution is fixed largely by current density needs, average current flow per anode, and exposed metal area. When anodes are closely spaced, they may be connected in banks by collector wire paralleling pipe and connected to it every 200-1000 ft.

On coated pipe lines, where current distribution is controlled primarily by coating resistance, anodes may be spaced several hundred feet to several miles apart, depending on condition of coating.

Magnesium anodes are usually installed in augured holes adjacent to structure being protected. Each hole should be as deep as economically feasible so a strata of permanent moisture and minimum soil resistivity is found. Where the special packaged anode is not used, four to six inches of backfill are added to hole an anode is placed on top of it, centered as well as possible. Then,

(Continued on top of page 60)



Issued periodically in Erie, Pennsylvania, by the Eriez Manufacturing Company, Producers of Magnetic Equipment.

MAGNETIC AGE

ERIEZ MAGNETIC PIPELINE TRAP SEPARATES IRON EFFECTIVELY

Efficient, economical protection against the passage of tramp iron through pipelines which convey liquids is afforded by the Eriez Permanent Magnetic Pipeline Trap. The device prevents damage to processing equipment or

Eriez Permanent Magnetic Pipeline Trap



contamination of product by removing stray iron from materials conveyed in the pipes.

The trap is simply constructed. It consists of a cast stainless steel housing and a specially designed permanent magnet element. There are no moving parts.

Stray ferrous material in liquids is caught by the powerful permanent-duty magnet. Cleaning is accomplished by simply removing a face plate; the trap remains in the line.

Available in 2", 2 1/2", 3" and 4" diameters, with threaded ends. The separator withstands pressures up to 75 psi.

For more data on pipeline traps circle No. 4 in coupon and mail to Eriez.

NEW MICRO SEPARATOR REMOVES MINUTE IRON AUTOMATICALLY

The new Eriez Non-Electric Micro-Magnetic Separator automatically removes iron particles from fine, cohesive dry powders. These particles may range in size from 16 mesh down to tiny 400 mesh; the parent powder mass can be almost as small.

Recent tests with cohesive aluminum oxide powder (240 mesh) showed 99.25% of the tramp iron removed at a flow of 16.6 cu. ft. per hour. At double the flow the efficiency was still over 98%. Units capable of handling 2 tons per hour are being built.

Operating costs are very low because the magnetic separation is effected by permanent magnets, the power of which lasts indefinitely. The unit is complete in itself . . . ready for

RUBBER COMPANY SAVES \$ WITH ERIEZ MAGNETIC PULLEYS

The U. S. Rubber Reclaiming Company, Buffalo, uses Eriez permanent (non-electric) magnetic pulleys to remove tramp iron from used rubber in its reclaiming operation, thus protecting their attrition mills from damage. The installations were designed by Eriez engineers and by Earland E. Harvey, chief engineer of the rubber firm.

Mr. Harvey is extremely satisfied with the service his Eriez permanent magnets are giving the company. Downtime and repair bills arising from tramp iron damage have been reduced substantially. Maintenance cost for the magnetic protection is virtually nothing because no electric power is required.

As Harvey says, "I wouldn't think of buying electros any more. It would be the same as buying last year's newspaper."

For more data on Eriez permanent magnetic pulleys circle No. 2 in coupon and mail.

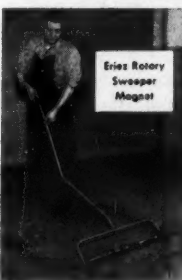
Eriez Micro-Magnetic Separators have the capacity to clean efficiently materials moving in volumes of 15 to 20 cubic feet per hour per foot width. The average material, for example, can be processed at one ton per hour per foot width.



immediate installation and operation. Available in 12", 18" and 24" hopper inlet widths.

The Eriez Micro-Magnetic Separator represents a completely different approach to a difficult separation problem. It combines mechanical and magnetic forces to effect separation. For more information, circle No. 1 on the coupon and mail.

NEW ERIEZ ROTARY MAGNETS SWEEP FLOORS, RETRIEVE PARTS



A low-cost permanent magnetic device for sweeping up or retrieving ferrous material from floors, parking lots, plating tanks, etc., is now being marketed by the Eriez Mfg. Co. These lightweight rotary magnets offer maximum pick-up capacity because the magnetic tube rotates through a full 360° and thereby presents the greatest possible surface area for collection.

Two types are manufactured, floor and tank magnets. The floor magnet has proved invaluable in cleaning up factory floors, driveways, parking lots and other areas. It operates just like a carpet sweeper, with the magnetic tube mounted between Neoprene wheels. Ferrous material literally jumps to the magnet and spreads itself over the entire circumference to a thickness of about 3/4". Unloading is accomplished at either end by simply pushing the wiper ring from one end of the tube to the other, where a non-magnetic section causes the load to be released. Several sizes are available.

The tank magnet is extremely useful in removing metal parts or contamination from alkali baths, plating tanks, etc. Design is similar to that of the floor magnet except stainless steel is used in its fabrication to make it acid-proof and alkali-proof. Two different sizes are manufactured.

Prices on the Eriez Rotary Magnets range from \$26.50 to \$53.50 depending upon model and size. For more information circle No. 3 in coupon and mail to Eriez.



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Get Eriez 8-Page Quarterly House Organ • Technical, Human Interest, Installation Stories • Request On Business Letterhead

When inquiring check CP 7184 on handy form, pgs. 2-3

Announcing

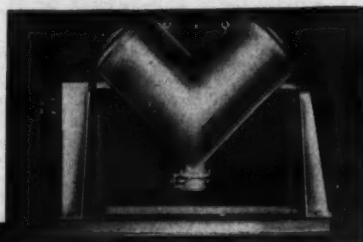
The NEW P-K Twin-Shell Blender*

...operating on an entirely new mixing principle

Unique in design — practical in operation, this blender provides a mixing action for dry materials unlike that of any other blender on the market. It combines an effective "split stream" action with a tumbling, rolling and folding movement, resulting in a smooth continuous mixing action. Blender capacities range from 1 to 300 cubic feet. Speeds range from 6 to 25 rpm. Mixing times vary with different products, of course, but are consistently shorter than with any other type of blender. Power requirements 1/4 to 20 hp. Steel or allied materials.

smooth operation

The blending mass splits, rolls and folds during each revolution. No long drops or baffled falls. Will not break down delicate crystal shapes.



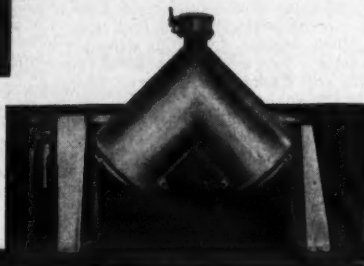
lower power consumption

Less power required; fewer revolutions to produce perfect blending.



faster mixing action

Resulting from novel "split stream" action coupled with rolling and folding.



easily cleaned

Large access openings; all parts accessible; no baffles to catch and hold delicate particles and to contaminate the next batch.



test blends of your materials

Send us 8 quarts or more of each material. We'll make blending tests and report time required. You are welcome to visit our laboratory and see the tests made in our transparent plastic shell blender. Or, if you prefer, buy one of our 4 qt. or 8 qt. transparent laboratory blenders. Interchangeable. 1/20 hp 60 cycle, 120 volt motor.



Write on your company's letterhead for Catalog 401, describing the new P-K Twin-Shell Dry Blender.

the P-K
Patterson-Kelley Co.,
INC.

30 Lackawanna Avenue • East Stroudsburg, Pa.
Offices or Representatives in Principal Cities



*Patents Pending

When inquiring check CP 7185 on handy form, pgs. 2-3

IDEAS

(Continued from page 59)

more backfill is added to fill hole to 4"-6" above anode, and remainder of hole is filled with earth.

Anode lead wire is trenched-in over to structure, and free end is connected by welding, brazing or soldering. The ribbon type is plowed into earth parallel with pipeline, and connected to it every 300-500 ft. by insulated copper wire.

Why a special backfill?

A special backfill around the anode is found to increase operating efficiency and lengthen its life. Backfill isolates the anode chemically, yet acts as a good electrolytic bridge. It also retains the moisture necessary for proper anode operation. Dowell has a quick-wetting, premixed backfill that can be put in hole dry, and water added.

The special units containing the backfill and anode, already put up together, save the steps of mixing and shoveling in the backfill. They are placed into hole, water is added, lead wire connected, and earth is shoveled in. Centering of anode in backfill is assured.

Approximate cost

Several things have to be considered in estimating the material costs of installation. Such things as soil resistivity, current flow per sq. ft. of pipe necessary for protection, condition of coating (if there is one) are important. There are standard procedures for determining these variables.

To give a general idea of costs, we will assume one mile of bare 8" pipe, each sq. ft. of which requires 1 milliamperes of current flow for protection. We also will assume that each anode delivers 100 milliamperes of current in the average soil conditions present.

One mile of pipe has a surface area of 11,915 sq. ft. Hence the number of anodes required would be $11,915 \times 1/100 = 119$. If each anode weighs 17 lbs (about 90% of which is magnesium), and produces 500 ampere-hours for every lb. of magnesium metal consumed, each anode would last $500 \times 1000 \times 17 \times 0.90/100 \times 24 \times 365 = 9.4$ years.

With an average cost of \$15 per anode installed in this instance, these 9.4 years of protection would cost about $\$15 \times 119 = \$1,785$. To put this in a different way, complete cathodic protection on a yearly basis would cost $\$1,785/9.4 = \190 .

If the line is well-coated and wrapped, the yearly cost is much less because current requirement per sq. ft. for protection is much less. It runs about 10-15% of the cost for bare pipe on new line. The cost increases as the line is used because the coating deteriorates with time and more cathodic protection is required.

Further data is available from Dowell Incorporated, Dept. CP, Kennedy Bldg., Tulsa 3, Okla. . . or for more information check CP 7186 on handy form, pages 2 and 3.

Instrument and control panels

Installation photos showing all sizes, shapes and designs of manufacturer's instrument and control panels, with detailed descriptions of their fabrication, uses and special features, are set forth in Bul. 773. Eight pages. Issued by The Hays Corporation, Dept. CP, Michigan City, Ind. When inquiring specify CP 7187 on handy form, pages 2 and 3.



FILTER CLOTH Saves \$3600 IN FOUR MONTHS

A New Jersey chemical plant saved more than \$3600.00 in four months by switching from a cotton filter cloth to a FEON Nylon with FEON Nylon padduck backing. Cotton duck which cost \$200.00 for the five filters, lasted less than one week. The FEON cloth and padduck remained on the same filters for 21 weeks, costing only \$540.00 for all five filters. And think of the "down time" saved!

FEON FITS Your FILTER

FEON synthetic filter cloths are made by Filtration Fabrics Division to fit all makes of vacuum and pressure filtration equipment. Since they are stronger and more resistant to abrasion and mechanical abuse, a lighter cloth (usually more efficient than a heavier cloth) can often be selected.

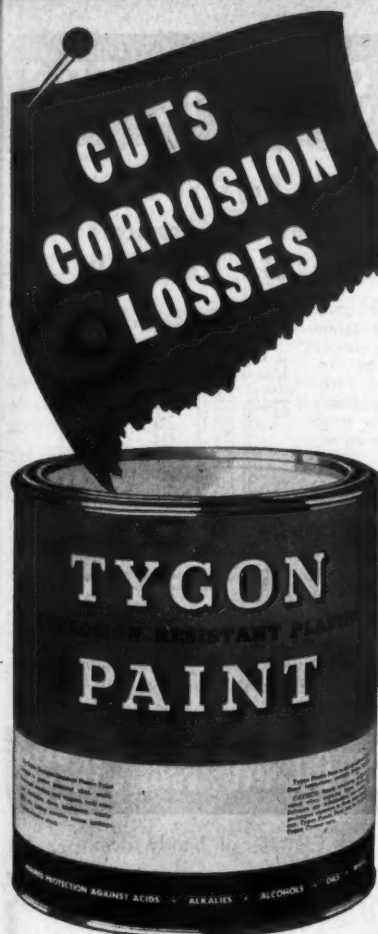
**GET STARTED
NOW**

FILTRATION FABRICS DIVISION
Filtration Engineers, Inc.
155 Oraton St., Newark 4, N. J.
We'd like more facts on
FEON cloth for:

Type of Filter
Size
Chemical Conditions
Temperature
NAME
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COMPANY
ADDRESS

When inquiring check CP 7188
on handy form, pgs. 2-3

CHEMICAL PROCESSING



TYGON plastic
Paint protects
metal, concrete
and wood from
attack by acids,
alkalies, oils, fresh
or salt water.
Tough, flexible film
resists impact.
Non-contaminating
to solutions.

• Write for Test Samples

U. S. STONEWARE

Since 1880

When inquiring check CP 7189
 on handy form, pgs. 2-3

APRIL, 1950

IDEAS

Remove sewage phosphorus by method that retrieves chemicals used . . .

cost of alum, other materials, held to \$90 for
 daily volume of 15 million gallons of sewage

A pilot plant that can apparently take the phosphorus out of sewage effluent has been developed at University of Wisconsin. Possibilities of this process, if used on a large scale, would promise several advantages. Lakes and streams would no longer be contaminated with surplus phosphorus. Also, sewage phosphorus, which up to now has been lost, could be refined and sold as commercial fertilizer.

Ordinary sewage effluent being discharged by the Nine Springs plant of the Madison Metropolitan Sewage District contains about 5 ppm of phosphorus. By the new process, this level is reduced to 0.7 ppm, which is actually below the amount of phosphorus contained in most natural creek water.

It is estimated that a ton of salable phosphorus fertilizer could be secured from the 15 million gallons of sewage processed daily at the Nine Springs plant.

Involved in this flocculation process of phosphorus removal is the addition of about 200 ppm of alum to a batch of sewage effluent. Alum and effluent are mixed together for about 15 minutes. This mixing brings about the formation of a sludge which sinks to the bottom of the tank, carrying the phosphorus and the alum with it. The liquid effluent is then piped off into a stream, and the phosphorus-alum sludge stays in the tank.

Months of experiment were required until the right amount of alum to use was determined, as well as optimum mixing time, and the proper acidity rating for the sewage effluent in the mixing tank. It turned out that the best pH rating of effluent was about 7.5, approximately the normal value of Madison sewage effluent.

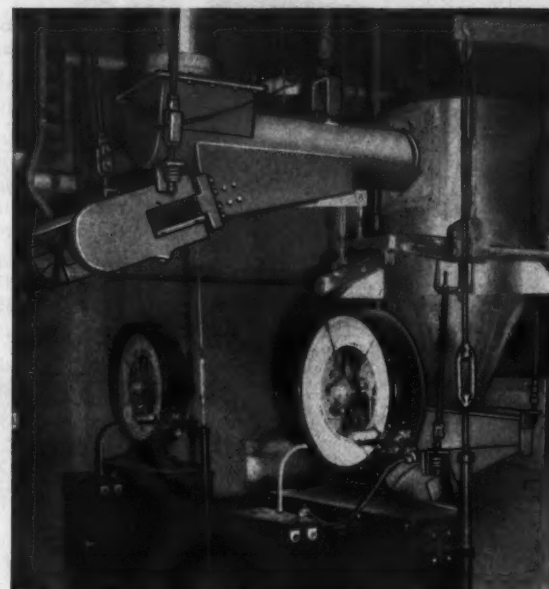
A difficulty foreseen in applying the method to a large scale operation was cost of alum. Another problem was accumulated sludge. A method for recovering alum and refining the phosphorus sludge was worked out as follows:

Alum-phosphorus sludge goes to a reaction chamber, where its alkalinity is raised by addition of sodium hydroxide. This brings the alum and phosphorus into solution. Solution is piped to another tank. Here, calcium chloride is added. The phosphorus settles out in the form of calcium phosphate, and sodium aluminate is drawn off in solution. Almost 93% of the alum is thus recovered and can be used again. (Summarized from report on research work conducted by Profs. Wm. L. Lea and Gerard A. Rohlich of University of Wisconsin Department of Civil Engineering.)

Relates uses, properties of glycerine

Sixteen-page, 2-color bulletin describes the properties of USP glycerine as a humectant, solvent, sweetener, and as an antiseptic. Relates uses in drugs and cosmetics. Includes detailed physical and chemical information: specific gravity, viscosity, freezing point, etc. of aqueous glycerine solutions at various concentrations. Contains a bibliography of references.

"Why Glycerine for Drugs and Cosmetics?", issued by Dept. P. R., Glycerine Producers' Association, Dept. CP, 295 Madison Ave., New York 17, N. Y. When inquiring specify CP 7190 on handy form, pages 2 and 3.



ACCURACY
 OF BATCH

SIMPLE
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SYNTRON

"Automatic"

BATCH WEIGHING

—starts working with the push of a button.

Vibrators on bins and hoppers keep the materials free-flowing. The vibratory feeders automatically filling scale hoppers to exact weight and discharging onto secondary vibratory feeders, smoothly emptying each accurately weighed batch into mixers, blenders, belt conveyors, etc.

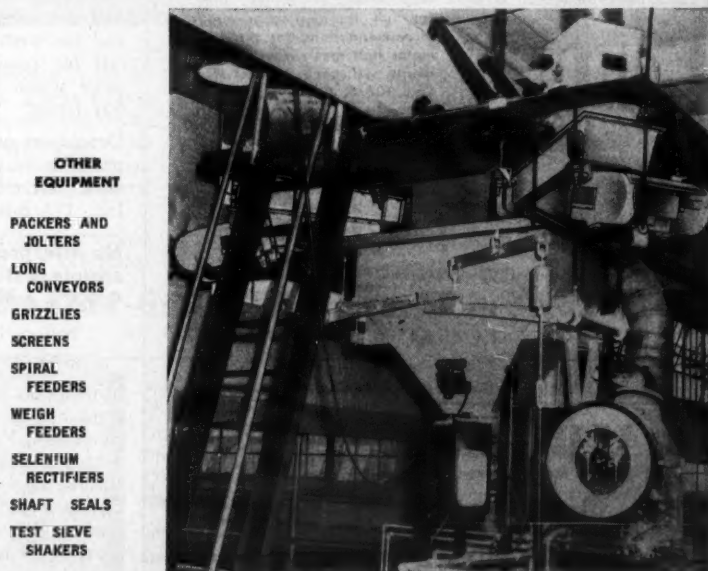
Any one, or a combination of any number of materials may be batched, accurately and automatically, at the same time.

Write us about your problem.

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When inquiring check CP 7191 on handy form, pgs. 2-3

Choose the **RIGHT Motor**
...the **RIGHT POWER...**
for the new **AIRETOOL**
Tube Rolling Control

**SELECT FROM FOUR SIZES FOR
CONDENSER TUBES 1/4" TO 1 1/2" O.D.**
Let our engineers help you select
motor sizes best for your requirements!

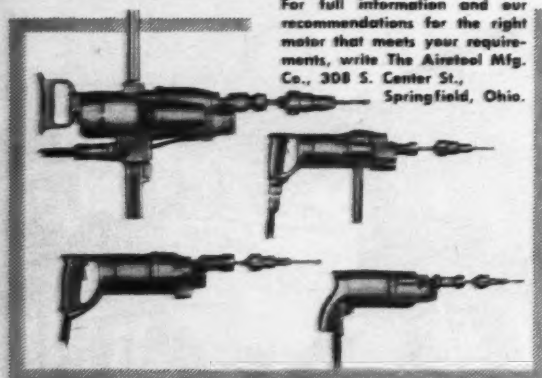


One big reason why you can count on more accurate results with the Airetool tube rolling control is the wide choice of motor sizes which you have to power it.

There are, as shown, four electric motors which meet every known power or industrial requirement. Each is interchangeable with the control unit and in results surpasses the performance of air motors.

You will find this new-found tube rolling accuracy pays off in many ways... in longer tube life... reduced tube end corrosion... fewer tube failures... longer expander life and more accurate work. By selecting motors with the right speed and power you can deliver this greater accuracy and meet production or piece work schedules in less time.

For full information and our recommendations for the right motor that meets your requirements, write The Airetool Mfg. Co., 308 S. Center St., Springfield, Ohio.



There's an AIRETOOL Tube Cleaner and Tube Expander for every type of tubular construction.

BRANCH OFFICES:
New York,
Philadelphia,
Chicago,
Houston,
Tulsa,
Saton Rouge

When inquiring check CP 7192 on handy form, pgs. 2-3

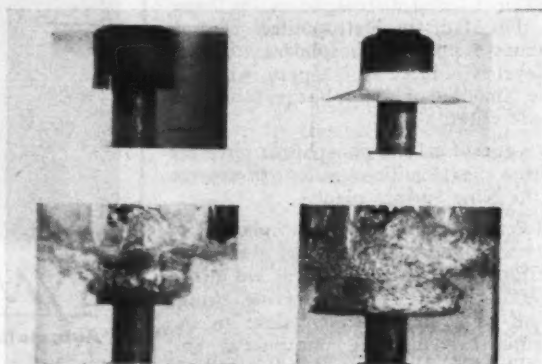
IDEAS

Skirted bubble caps provide increased bubbling area...

screened units are of value in towers operating under heavy liquid loads, low vapor rate

Among numerous developments in tray design, resulting from visual observation of vapor liquid contacting apparatus in glass tank models, is a new bubble cap design which promises to give increased efficiency over wide ranges of vapor and liquid loads.

Towers operating under heavy liquid loads with low vapor rates require a comparatively small number of caps per tray, and consequently, the volume of liquid within which vapor bubbling and mass transfer takes place is rather



Action of conventional and screen-slotted caps

small. The new cap design provides a nearly horizontal screen skirt in place of the vertical slots and thus extends the bubbling action over a wider field around each cap. Effectiveness of this screen skirt can be seen in comparing the photographs of the conventional vertical slot bubble cap with the screen skirt cap under identical test conditions. Both caps are 3" ID, submerged 2 1/2", and operate with 10 cu. ft./min. of vapor.

Performance of this type of cap has been found to vary with the screen mesh size, angle of inclination of the skirt, and the wetting tendencies of the liquid. Present plans call for possible investigation of the feasibility of one-piece screen skirt construction for fitting over an entire tray layout.

Developers of this cap say that it is not their intention to produce or patent it, but to bring it to attention of those interested in this field. (Hydrocarbon Research, Inc., 115 Broadway, New York 6, N.Y.)

No intergranular corrosion in stainless steel having only 0.03% carbon...

boiling in 65% nitric acid for 240 hrs has no effect; steel needs no stabilizer, welds well

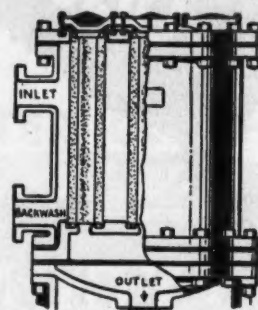
Low-carbon stainless steels (0.03% carbon), which have resistance to intergranular corrosion equivalent to that of conventional 18-8 stainless steels, are now in production on a commercial basis. This was announced by Carnegie-Illinois Steel Corp., a United States Steel Subsidiary. Low carbon level is of interest because when corrosion of stainless steel is encountered much of it centers in deposits, composed mostly of carbon, between the microscopic steel grains.

Test samples of the new stainless steel have been boiled in 65% nitric acid for 240 hours without corroding between

ADAMS PORO STONE FILTERS

for High-Degree Crystal-Clear
Filtering of Corrosive Chemicals
CFR (Rubber-lined) CFL (Lead-lined)

Adams Filters are completely enclosed for safety—yet installation is simple and tubes may be inspected or removed without dismantling the filter. All parts in contact with the acid are inert to its action.



Filter tubes are easily and speedily cleaned by backwashing, and may be repeatedly cleaned and used. There is full reclamation of the filtered acid.

Descriptive Circular 303 gladly mailed. A test in your plant of Poro-stone tubes operating under your actual conditions can be arranged on request.

R. P. ADAMS CO. INC. 243 E. PARK DRIVE
BUFFALO 17, N. Y.

When inquiring check CP 7193 on handy form, pgs. 2-3

MARLEY NOZZLES 3 Ways to Perfect Spray

Atomizing Nozzle for any service requiring a mist-like spray

Two-Piece Nozzle is easily cleaned without removal from piping

One-Piece Nozzle... for maximum uniform output at lowest pressure



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THE MARLEY COMPANY, INC. • KANSAS CITY 15, KANSAS

When inquiring check CP 7194 on handy form, pgs. 2-3

grains. Later, they were boiled 500 hours in copper sulphate and sulfuric acid with still no corrosion. Acid tests were made after the steel had been heat-treated at temperatures ranging from 1000 to 1625°F.

These tests are prescribed by metallurgical authorities in the qualification of material for corrosive conditions that prevail in some industries, notably chemical manufacturing plants. Steels which pass muster are adjudged adequate for use in vats and retorts, mixing vessels and other equipment which must resist corrosion to assure purity of products made in them.

Up to the present it has been necessary to add columbium or titanium to austenitic 18-8 stainless steels to minimize adverse effects of carbon and thereby render the alloy less susceptible to intergranular corrosion. Supply of these elements is sometimes critical. Consequently, conservation is served by avoiding their use unless absolutely necessary.

Welding tests have shown that the low-carbon 18-8 materials can replace stabilized types for applications which, like welding, involve short heating times at elevated temperatures. In addition to corrosion and welding tests, the new low-carbon stainless steels have been subjected to tensile, impact and other physical tests. In these, their mechanical properties in every instance were quite comparable to the higher carbon grades of 18-8 stainless steel. (United States Steel Corp. Subsidiaries, Pittsburgh, Pa.)

Prevents polystyrene from attracting dust . . .

inexpensive dip treatment effective during an extended period; is unnoticeable on plastic

Polystyrene may be easily and quickly treated to prevent attraction of dust. Merely dipping parts in a special liquid is all that is required.

The liquid dries rapidly and is not water soluble after application. However, if removal is desired, it may be accomplished by washing the dipped parts with soap and water. Treatment continues effective for an indefinite period.

Of importance is the fact that there is no interference with subsequent normal painting when using a companion product, pigmented "Logoquant".

No special equipment is needed in using this anti-dust dip. Liquid is not a wax and is said to be unnoticeable on the plastic. It is named "Logo Stat." (Bee Chemical Co., 13799 South Avenue O, Chicago 33, Ill.)

Oil-coated lithium ribbon for Grignard synthesis . . .

method protects metal's shiny, reactive surface and makes it easy to use in reactions

Lithium is now being distributed in easy-to-use ribbon and wire form, each of which is coated to protect the shiny reactive surface.

Wire is available in 1/8" diameter and is protected by a coating of semi-hard petroleum jelly. Ribbon, 5/16" wide by 1/32" thick is coated with a heavy oil. Both greasy coatings may be removed before using by a quick bath in various thin petroleum solvents.

Both forms are furnished on wooden spools. Wire and ribbon lithium are recent developments of Metalloy Corp., Rand Tower, Minneapolis 2, Minn., and extend the selections of forms in which they supply lithium metal. Other forms are ingot, cup, wire and shot.

Gaulin

High Pressure Pumps-



**Give Production
a Raise
BY LOWERING
COSTS!**

You can increase production and reduce costs by using Gaulin High Pressure Pumps. These heavy-duty pumps are available in any capacity from 75 to 2500 gallons per hour with operating pressures up to 8000 lbs. per sq. in. Their rugged construction throughout assures long operating life with little if any maintenance.

For example, the cylinder and all fittings with which the product comes in contact are of 302 or 316 stain-

less steel. Special spring-loaded design plunger packing insures maximum life and trouble-free operation. Special applications requiring specific metals and types of packing can be constructed to meet individual requirements. Valves and seats are made of either 302, 316 stainless steel, stellite or Hasteloy.

It will pay you to investigate Gaulin High Pressure Pumps for your processes. Mail coupon for complete information.

Manton Gaulin Manufacturing Co., Inc.
55 GARDEN STREET, EVERETT 49, MASS.



TYPICAL USERS OF GAULIN HIGH PRESSURE PUMPS

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MANTON GAULIN MFG. CO., INC.
55 Garden Street, Everett 49, Mass.

Gentlemen:

Please send me catalog and information about the Gaulin High Pressure Pumps.

Name

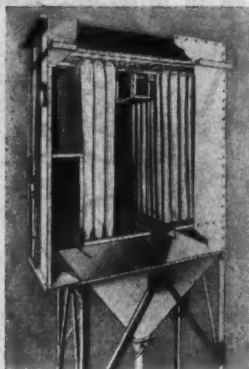
Company

Street

City and State

When inquiring check CP 7195 on handy form, pgs. 2-3

Control Dust at a PROFIT with a **DUSTUBE**



Dust control with a Dustube is a more profitable operation because it cleans the air at an unusually low cost. It removes dust with nearly 100% efficiency by actual test. Its unique, simplified design is responsible for many cost saving advantages that thousands of users have found outstanding.

Lower Resistance to Air Flow REDUCES POWER COSTS

The resistance to air flow (back-pressure) is much lower in a Dustube than in any other cloth type collector of equal capacity. This means important savings for you in lower power costs because power consumption varies in almost direct proportion to the back-pressure.

Simplified Design REDUCES MAINTENANCE COSTS

The Dustube requires practically no maintenance. There are few working parts to wear. Filter tubes are ready for instant inspection from the clean air side — nothing need be disassembled to do this. When an occasional tube replacement is needed one man can do the job in a few seconds — he needs no tools whatever.

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478 S. Byrkit St., Mishawaka, Ind.

dustube
COLLECTORS

Offices in Principal Cities

When inquiring check CP 7196 on handy form, pgs. 2-3

IDEAS

Severe service requirements stimulate developments in new metals . . .

molybdenum, titanium, zirconium offer interesting comparisons with various other metals

Techniques for producing and fabricating molybdenum, titanium and zirconium have been stimulated by the need for materials adequate for the severe high temperatures or corrosive conditions which are encountered more and more in present day technology.

Molybdenum and titanium are now obtainable in limited quantities and shapes, but zirconium research has not advanced to the point of making that metal readily available. Progress is such, however, that within the next few years

Compared Metals	Approx. melting point °F	Weight in pounds per cu. in.	Weight in pounds per cu. ft.	Weight ratio**
Magnesium*	1204	.063	109	1.00
Beryllium*	2345	.066	114	1.05
Aluminum*	1215	.098	170	1.56
Titanium*	3300	.164	284	2.60
Zirconium*	3200	.23	398	3.65
Plain high chromium stainless steels	2750	.28	485	4.45
Plain carbon and low alloy steels	2700	.286	490	4.50
Austenitic stainless steels	2600	.29	500	4.58
Nickel*	2650	.32	560	5.13
Copper*	1980	.32	560	5.14
Molybdenum*	4760	.37	650	6.00
Tantalum*	5400	.60	1050	9.70

Compared Metals	Expansion ratio**	Thermal conductivity ratio**	Specific heat ratio**	Tension modulus in millions
Magnesium*	1.00	1.00	1.00	6.3
Beryllium*	0.46	1.00	2.10	37
Aluminum*	0.92	1.40	0.86	10
Titanium*	0.33	0.19	0.50	17
Zirconium*	0.19	0.05	0.26	11
Plain high chromium stainless steels	0.42	0.26	0.43	29
Plain carbon and low alloy steels	0.46	0.51	0.43	29
Austenitic stainless steels	0.67	0.17	0.47	28
Nickel*	0.50	0.58	0.42	30
Copper*	0.63	2.50	0.37	16
Molybdenum*	0.19	0.92	0.24	50
Tantalum*	0.25	0.34	0.14	27

*Commercially pure metals

**Approximate ratio (near 70° F) Magnesium = 1

they should take an important place in industry along with the other so-called "special metals", such as the stainless steels, super-alloys, tantalum and others.

Accompanying table shows common characteristics of these metals as well as nine others. This serves as a basis of comparison and also suggests the limitations of the three metals here concerned.

Molybdenum, which is available commercially, is particularly noteworthy because of superior strength at temperatures above 1900°F, as compared with the best present day metals, and for its high modulus of elasticity.

Molybdenum shows outstanding resistance to hydrochloric acid. A decided limitation, however, is the severe oxidation of the metal at red heat and above. Surface coatings that will overcome this drawback are being intensively studied and will probably provide a solution to the problem. Welding of molybdenum presents problems due to its high conductivity and melting point, and development work in this field is required.

Titanium appears to have a future paralleling that of aluminum. It is about 67% heavier than aluminum, but

Cut Heads Out of Drums —

In one trip — In one minute!

SCHINKER MANUAL
HEAD CUTTER
for Steel Drums



SPEEDY — Cuts all sizes, loaded or empty — clean and quick.

PORTABLE — Take it where needed — weighs only 36 lbs.

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ELIMINATES — Dangerous Torch Cutting — Saw Tooth Edges — Hammer and Chisel Noise.

PRICE \$150.00 f.o.b. CHICAGO Wire — Write

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When inquiring check CP 7197 on handy form, pgs. 2-3



GRUENDLER
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Large Capacity, Operating in Penick & Ford Co. Plant in Brooklyn, N. Y. With Variable Feeder Control.

Outstanding features of Gruendler Master Precision built unit, providing just the right product, practically dustless and with positive control feed.

Now serving Process Industry on many products such as 4X and 6X powdered-sugar, insecticides, charcoal, soya cake, wood flour, clay, plastics and many other products too numerous to mention here. Its sturdy design, smooth operation has won high praise in handling heretofore troublesome products.

Also mfr. of Swing Hammer & Ring Hammer Mills, Jaw Crushers, Rolls, Shredders, Roller Mills, Screening and Conveying Equipment, Batch and Continuous Mixers built in sizes to fit your job. Write for our bulletin, "Success in Grinding."

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Dept. CP

St. Louis 6, Mo.

When inquiring check CP 7198 on handy form, pgs. 2-3

over 40% lighter than stainless steels. It is weldable and does not present any unusual fabrication problems. One metal producing company has announced availability of limited quantities of titanium in sheet and other forms. Zirconium development appears to be in its early stages. While the metal is available for special small scale uses, it is not being produced in commercial quantities at present. It is about 40% heavier than titanium. It is superior to titanium and stainless steels in corrosion resistance to many media.

Source: Tempil Corp., Dept. CP, 132 W. 22nd St., New York 11, N. Y. . . . or for more information check CP 7199 on handy form, pages 2 and 3.

**Maintain test uniformity
in oil company's 37 labs
throughout world . . .**

check 60,000 pieces of test equipment each year

Every year 60,000 pieces of testing equipment are checked in the Beacon, N. Y., research center of The Texas Company. This department standardizes laboratory equipment for 20 refinery and 17 terminal laboratories throughout the world and is also responsible for initiation of new and improved test methods. In this way, products manufactured anywhere in the world can be made to conform to the rigid specifications maintained by the company.

Since the quality of finished fuels and lubricants is entirely dependent on exact duplication of test methods and testing equipment, such instruments as thermometers, hydrometers, viscosity pipettes and stopwatches are compared at this department against known standards before being shipped to the various refineries.

Experts in the field of standardization make annual tours to the 37 laboratories. This provides a control that assures conformity of all 37 to standardized procedures in conducting the multitude of inspection tests. These experts check knock-rating engine operations, high and low temperature fractional distillations, mass spectrometer and infra-red analyses. Identical samples of commercial petroleum products are shipped periodically to other laboratories so that they may independently check on the accuracy of their test results.

Catalogs of approved laboratory apparatus and test techniques are distributed to all refineries and laboratories. As new and improved testing procedures are evaluated and standardized, they are currently shipped as revisions to the eight volumes of tests available.

Some 700 of these test procedures have been issued to date and divided into the following volumes: Asphaltic Products, Gas Tests, Knock-Rating Engines, Standard Methods, Government Specifications, Purchase Specifications, Manual of Special Tests and Special Methods of Test. (The Texas Company, 135 East 42nd St., New York, N. Y.)

**Shows how to splice rubber
transmission belting**

Three-color, 4-page folder illustrates and describes rubber transmission belting. Gives recommended uses, construction, type of fabric, color, rubber, friction pull, length, and ply and thickness specifications for each of 6 different types of belting. One page is devoted to instructions for splicing the belting.

Folder 2100, issued by The B. F. Goodrich Company, Dept. CP, Akron, O. When inquiring specify CP 7200 on handy form, pages 2 and 3.

APRIL, 1950



When It's
Grinding or Pulverizing

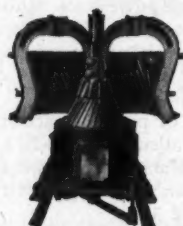
STURTEVANT
EQUIPMENT

*DOES THE
JOB FAST!*

Whether you grind soft or hard materials, there is a Sturtevant Grinder or crusher exactly suited to your requirements.

Tough and rugged, Sturtevant Equipment has the built-in stamina to stand up under continuous operation. Most of this equipment has the "open door" accessibility which makes cleaning easy.

Look into Sturtevant Grinders and crushers for your applications. These machines will give you the exact mesh you want . . . cut your costs by increasing production. Write for catalog today.



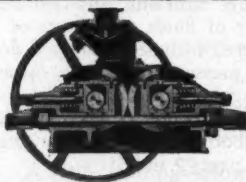
ROTARY FINE CRUSHERS for intermediate and fine reduction (down to $\frac{1}{4}$ "). Open door accessibility. Soft or moderately hard materials. Efficient granulators. Excellent preliminary Crushers preceding Pulverizers.



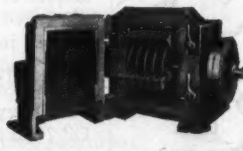
JAW CRUSHERS for coarse, intermediate and fine reduction of hard or soft substances. Heavy or light duty. Cam and Roller action. Special crushers for Ferro-alloys. Several types, many sizes.



RING-ROLL MILLS for medium and fine reduction (10 to 200 mesh), hard or soft materials. Very durable, small power. Operated in closed circuit with Screen or Air Separator. Open door accessibility. Many sizes. No scrapers, plows, pushers, or shields.



CRUSHING ROLLS for granulation, coarse or fine, hard or soft materials. Automatic adjustments. Crushing shocks balanced. For dry or wet reduction. Sizes 8 x 5 to 36 x 20. The standard for abrasives.



SWING-SLEDGE MILLS for coarse and medium reduction (down to 20 mesh). Open door accessibility. Soft, moderately hard, tough or fibrous substances. Built in several types and many sizes.



MOTO-VIBRO SCREENS screen anything screenable. Classified vibrations. Unit construction—any capacity. Open door accessibility. Open and closed models with or without feeders. Many types and sizes—range of work $\frac{1}{4}$ " to 60 mesh.

STURTEVANT MILL COMPANY

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DESIGNERS & MANUFACTURERS OF DENS AND EXCAVATORS • MIXERS • SCREENS • PULVERIZERS • ELEVATORS • AND COMPLETE FERTILIZER UNITS

When inquiring check CP 7201 on handy form, pgs. 2-3



REMEMBER A RATHER MODEST challenge we threw down recently in this column? We mentioned that our BEACON "subscribers" numbered 12,000 and asked, "Why not be 12,001 on our mailing list?" ... and we got taken up may pronto by a number of readers. One man actually said, "I would like to be number 12,001 on your mailing list for the BEACON."

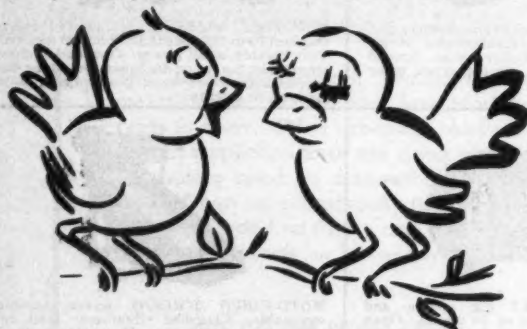
AS A MATTER OF STRICT FACT the number 12,000 was a "statistic" representing only an arbitrary pause for counting. Quick as the gentleman was, the growing BEACON circulation was even quicker. But we like the sentiment enormously, and we hereby make him Honorary 12,001 for all time and thus he is enshrined in our hearts.

ANOTHER EAGER LATE-COMER asked for a complete back number file of the magazine. We're still scratching, with about fifty-fifty success, to fill his "order," but we're not even hinting for an avalanche of this type of request, even though it's extremely flattering.

NEWEST STAR in our "Parade of Cities" is beguiling New Orleans. Lucky-dog-type feature writer Chauncey Black bagged the New Orleans assignment and reports enjoying the research involved. Having been "interviewed" for year, the low-pressure, high-voltage city goes its unself-conscious way, reporters or no reporters. Read the colorful results of CHB's research in the BEACON for May.

AS A PRE-PREVIEW ... the entire BEACON staff is marshaling material for the June issue which will feature Kansas City's one-hundredth birthday in the most gala manner we can devise. Kansas City's a tourist tip from June 3 on, with BS&B joining other companies in a three-ring circus of industrial exhibits, parades, and activities galore.

IF YOU CAN'T be in Kansas City, get your BEACON-side seat now ... join our regular readers with a request on your company letterhead. And for free! Write to:



"Hasn't anyone ever told you about the people and the bees?"

a BEACON original by Dave Hunt.

BLACK, SIVALLS & BRYSON, INC.
Industrial and Public Relations Division
Kemper Building, 720 Delaware
Kansas City 6, Missouri

When inquiring check CP 7202 on handy form, pgs. 2-3

Page 66

New Literature

Plasticizers, fatty acids and surface coatings

Properties, characteristics and application data for a complete line of primary and secondary plasticizers, including Plastolein 9720 resinous-type plasticizer, are presented in second edition of "Plastolein Products."

Sections on a low-molecular-weight fatty acid, special liquid fatty acids developed primarily for alkyl resins, and Emery M-461-R dimer acid (Di-Linoleic acid) are contained. Specifications, characteristics and applications in surface coatings field are described. Booklet issued by Emery Industries, Inc., Plastolein Dept., Dept. CP, 4206 Carew Tower, Cincinnati 2, Ohio. When inquiring specify CP 7203 on handy form, pages 2 and 3.

Describes practical applications, principles of freeze drying

"Freeze Drying", by Earl W. Florsdorf, is a 280-page book devoted to an explanation and description of the principles, practical applications and equipment used in the drying of foods and medical products by first freezing and then sublimating the water vapor under high vacuum. Both theoretical and practical aspects are discussed. Extensive bibliographies on the subject are included.

Remit \$5.00 direct to Reinhold Publishing Corporation, Dept. CP, 330 W. 42nd St., New York 18, N. Y. When inquiring specify CP 7204 on handy form, pages 2 and 3.

Details alloy, seals used in corrosive pumping

Centrifugal pumps for corrosive-pumping applications in chemical processing industries are illustrated and described in 11-page, 2-color bulletin. Gives detailed information on mechanical seals used in pumps for preventing leakage of corrosive liquids; includes data on corrosion-resistant alloy in pumps. Cutaway diagrams, photos of pumps in action, and specifications are included. Bulletin W-350-B11, issued by Worthington Pump and Machinery Corporation, Dept. CP, Harrison, N. J. When inquiring specify CP 7205 on handy form, pages 2 and 3.

Measure, record, control fluid density

Instruments for measuring, recording, and controlling the density or specific gravity of fluids are feature of 12-page illustrated catalog. Designs include submerged float types for use in vessels under pressure or vacuum, open-bubbler types, and closed-diaphragm and hydrometer types. Catalog 76, issued by the Fischer & Porter Company, Dept. CP, 76 County Line Rd., Hatboro, Pa. When inquiring specify CP 7206 on handy form, pages 2 and 3.

Saves time and weight by checking weight as load is lifted

Weighing materials or equipment as they are lifted is one way of making weighing a routine operation. This method has the further advantage of not requiring extra time or space.

A crane-type scale is described in a 4-page pamphlet which tells how it can be used in an inexpensive tensile test machine, for weighing fabricated and cast products, for test-

ing lift characteristics of machines, and as a protection device against overloading equipment.

Available from Hydroway Scales, Inc., Dept. CP, 20624 West 8 Mile Rd., P. O. Box 176, Detroit 19, Mich. When inquiring specify CP 7207 on handy form, pages 2 and 3.

Comprehensive treatment of adjustable-speed drives

Twenty-four-page, 2-color booklet (GEA-5334) presents concise summary of benefits derived from adjustable speed. Contains list for checking points to consider when selecting adjustable-speed drives. Equipment covered includes a-c and d-c motors, unit drives, and various electronic devices which provide adjustable speed. Many photos and diagrams.

Four other publications cover equipment in detail: 1) electronic motor drives (GEA-5337), 2) adjustable-speed motors (GEA-4883A), 3) adjustable-voltage d-c drives operating from a-c power (GEA-5335), and 4) adjustable-voltage d-c drives operating from a-c power and regulated electronically (GEA-5336).

All issued by General Electric Company, Dept. CP, Schenectady 5, N. Y. When inquiring specify CP 7208 on handy form, pages 2 and 3.

Specifies 2 types, 7 sizes of vertical-shaft speed reducers

Two types vertical-shaft, worm-gear speed reducers have lubricating pumps located directly either on lower end or on upper end of gear shaft. Seven sizes are specified for each type in 8-page, 2-color bulletin. For output shaft speeds of 100 rpm, thrust load capacities for both types range from approx. 2,200 (smallest size) to 7,200 lbs (largest size).

Detailed discussions, cutaway diagrams, dimensional data, and rated capacities are included. Bulletin 125, issued by The Cleveland Worm and Gear Company, Dept. CP, 3257 East 80th St., Cleveland 4, O. When inquiring specify CP 7209 on handy form, pages 2 and 3.

Bronze bars — cored, solid; rough and machined

Six-page, 2-color bulletin announces manufacturer's expanded line of bronze bars — both cored and solid, rough and machined. Tabulates sizes and weights, as well as physical properties. Describes uses and advantages of this wear-resistant, anti-frictional material. Includes illustrations, and a photo-micrograph. Immediate delivery made from stock.

"Tiger" Bronze", issued by National Bearing Division, American Brake Shoe Company, Dept. CP, 4930 Manchester Ave., St. Louis 10, Mo. When inquiring specify CP 7210 on handy form, pages 2 and 3.

Catalogs hydraulic pumps and controls

Hydraulic pumps and hydraulic controls are illustrated and described in 47-page, 2-color catalog. Vane- and piston-type pumps; pressure, volume, and directional control valves; and hydraulic motors are included. Contains performance curves, operating characteristics, cut-

CHEMICAL PROCESSING

away diagrams, and installation details. Specifications are given. Points out design features.

Catalog No. 4900, issued by Vickers Incorporated, Division of the Sperry Corporation, Dept. CP, 1400 Oakman Blvd., Detroit 32, Mich. When inquiring specify CP 7211 on handy form, pages 2 and 3.

Meters syrups, water accurately — for measuring, batching

Meters for accurately measuring and batching liquid sugars, syrups and water are described and illustrated in a two-color, 4-page bulletin. Text and pictures present an informative story of savings in ingredients, accurate formula control, elimination of unsanitary conditions and metering records that aid cost accounting.

A typical flow diagram shows arrangement of piping, meters and anti-drain valves in a system using three liquids.

It is explained that these meters are of the positive volumetric displacement type. Model featured in this bulletin, to indicate application of these meters, is the No. 432 in 1, 1½ and 2" units. Meter merely has to be set for quantity desired. Valve is opened and meter shuts off when exact quantity has been delivered.

A totalizing counter keeps track of quantities used in any specified period. Several types of registers, some delivering printed records, are pictured and described.

Bulletin 573-3 is issued by Neptune Meter Co., Dept. CP, 50 West 50th St., New York 20, N. Y. . . or for more information check CP 7212 on handy form, pages 2 and 3.

Handling liquid bromine

Methods and materials for handling liquid bromine, its handling and use in glass bottles, lead-lined drums and tank cars, are discussed in a brochure issued by Pharmaceutical Sales Dept., The Dow Chemical Company. Dept. CP, Midland, Mich. When inquiring specify CP 7213 on handy form, pages 2 and 3.

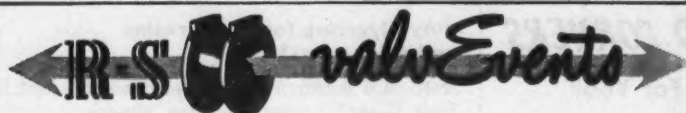
Expounds on rubber-type low-temp insulation

Twenty-page booklet covers the use of an insulation material — an expanded-rubber compound for low-temp insulation purposes. Structure is a myriad of tiny individually sealed balloon-like cells containing nitrogen. Material has a K factor of 0.21; is claimed to be superior to some low-temp insulations. Booklet contains detailed technical information. Bulletin No. RBH-1-50, issued by the Rubatex Division of Great American Industries, Inc., Dept. CP, Bedford, Va. When inquiring specify CP 7214 on handy form, pages 2 and 3.

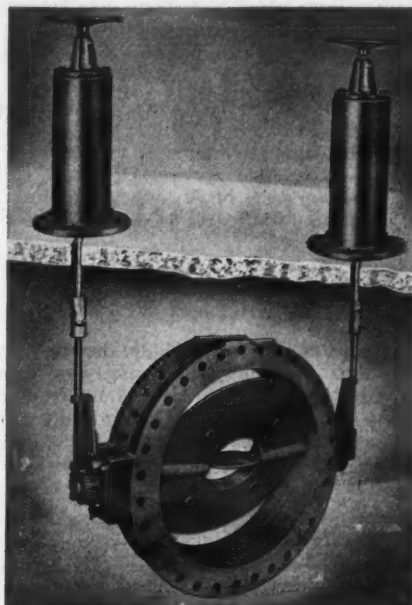
Oil cup's plastic reservoir is gauge of oil level

Combination oil cup and oil gauge units having clear plastic reservoirs are both illustrated and described in 2-page, 2-color bulletin. Used as visible oil cup to replenish oil in bearings, transmission and crankshaft cases; as visible oil gauge to check oil levels. Reservoirs are reinforced, shatter-proof; have self-closing, dust-proof filler caps. Specifications for 4 sizes with capacities from 1 to 8 ozs are given.

Bulletin No. 31, issued by Trico Fuse Mfg. Co., Dept. CP, 2948 N. 5th St., Milwaukee 12, Wis. When inquiring specify CP 7215 on handy form, pages 2 and 3.



• EXCERPTS FROM THE R-S BOOK OF EXPERIENCE •



No. 727

36 inch x 8 inch heavy duty dual valve with 125-pound Am. Std. flanges controls maximum flow with a small pressure drop in large 36-inch valve. By closing large valve, small inner 8-inch valve controls small flow with high pressure drop. Separate handwheel controls for each valve vane patented. Automatic control and drip tight rubber seat available.

7 Advantages of R-S VALVES

1. Economy in first cost. Minimum number of working parts.
2. Body assemblies correctly engineered mechanically and metallurgically. Equal or exceed A.S.A. standards in every detail.
3. Only a few handwheel turns required for opening or closing.
4. Less inherent pressure loss reduces pumping costs.
5. More control rangeability. Readily adapted to automatic operation.
6. Self-cleaning—no pockets to capture sediment—no objectionable turbulence or wire drawing.
7. Rotary motion of shaft reduces stuffing box problems.

R-S PRODUCTS CORPORATION
Wayne Junction • Philadelphia 44, Pa.



No. 680—Standard heavy duty valve with handwheel control—self-locking worm and gear. Automatic control and rubber seat available with 125-pound flanges. Rubber seated valves are drip tight with water at 100 psig and air bubble tight at 80 psig under temperatures up to plus 275° F. and as low as minus 40° F.



No. 771—Heavy duty water type valve equipped with handwheel control—self-locking worm and gear. One-piece body casting. Vane, shaft assembly and handwheel control identical with double flanged valve. Face-to-face dimension does not reduce torque. Flareout on body casting accommodates large mounting bracket base same as No. 680.



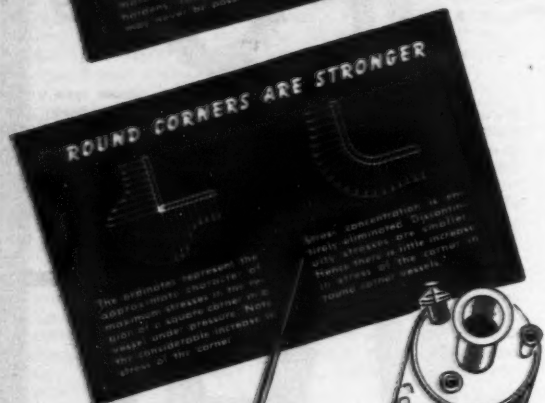
No. 734—72 inch 125 pound "H" metal valve for 800° F. Equipped with cooling fins, oil cylinder and positioner utilizing 200 psig operating oil pressure and 0-15 psig instrument air. Positioner cam driven simulating straight-line semi-log control curve or other characteristics if desired.

R-S field representatives maintain experienced engineering and maintenance staffs to study your valve problems, make recommendations and an appraisal of what you may expect from such studies. Specially trained factory representatives are also available for consultation. Consult with your local R-S representative. Look for the address and phone number listed under "R-S Products, Valves" or write direct.

When inquiring check CP 7216 on handy form, pgs. 2-3

WHY THEY BUILT ME WITH ROUND CORNERS

Advantages For Your
Stainless Steel Equipment
Revealed



The techniques of fabricating equipment with round corners for efficient service were developed to a high degree in our plant. We use special machinery for this job, as we do for many phases of stainless steel fabrication.

FOR BETTER STAINLESS STEEL EQUIPMENT,
CONSULT WITH US.

S. BLICKMAN, INC., 704 GIBSON AVE., WILMINGTON, N.J.



When inquiring check CP 7217 on handy form, pgs. 2-3

Page 68

NEW LITERATURE

Why glycerine for alkyd resins and ester gums?

A 16-page booklet, "Why Glycerine for Alkyd Resins and Ester Gums?", points out how glycerine's chemical structure makes possible a wide variety of modifications of the basic resin for use in varnishes, enamels and other surface coatings. Text, tables and charts give information as to physical properties, origin, development and chemistry. General reasons for glycerine's use are outlined, including interesting non-technical facts.

Tables of specific gravity, viscosity, freezing point, etc., of aqueous glycerine solutions at various concentrations, and a bibliography of references are included. Issued by Glycerine Information Service, Dept. CP, 295 Madison Ave., New York 17, N. Y. When inquiring specify CP 7218 on handy form, pages 2 and 3.

Comprehensive 68-page manual aids selection of air diffusers

68 well-illustrated pages facilitate the selection of proper air diffusers. Starting with typical case examples, this manual tells how to calculate required air volume and explains the technique of locating diffusers and determining number of units required. A selection chart shows 13 diffuser types, their characteristics, recommended application data and rate of air changes per hr.

30 pages detail types of diffusers, including capacities and neck velocities, radii of diffusion, static pressures, dimensions. Instructions for using rating tables are included below each table. There are 18 pages of accessories, volume control, specifications and installation information. Cut-away photos demonstrate attachment to ducts, and how accessories are applied. Special applications are covered.

Fully indexed, printed in color, and punched for insertion in notebook. Manual 31, issued by Anemostat Corporation of America, Dept. CP, 10 E. 39th St., New York 16, N. Y. When inquiring specify CP 7219 on handy form, pages 2 and 3.

Facilitates selection of water heaters

U-tube water heaters (constructed so water flows through tubes and steam condenses in the shell), and condensate coolers (for transferring waste heat from condensate to process service) are completely specified in 37-page, 2-color catalog. Arrangement facilitates equipment selection. Includes description, diagrams, and photos of units. Catalog 202, issued by the Patterson-Kelley Co., Inc., Dept. CP, 12 Wilson Ave., East Stroudsburg, Pa. When inquiring specify CP 7220 on handy form, pages 2 and 3.

Charts for designing absorption, fractionating tower fill 3 volumes

Assistance in absorption and fractionating tower design will be found in two large volumes of charts containing liquid-vapor equilibrium constants, and in a third volume containing fugacities for light hydrocarbons in mixtures.

Differing from similar charts in the past, these are not only functions of temperature and pressure, but also a function of the composition of both liquid and vapor phases. Pressures graduated from atmospheric to 1000

Spray Nozzles

ALL TYPES — ALL SIZES

Select the spray nozzle you need from a complete range of sizes in types for every industrial application. Every nozzle is precision made to assure accuracy in the most exacting spray operation. These nozzles and their application are described in detail in General Catalog 22 and Pneumatic Atomizing Catalog 23. Get these two useful catalogs now for handy reference.



When inquiring check CP 7221 on handy form, pgs. 2-3

Write for this new *Bulletin*
Get the facts
on how you can
save on
DRUM CLOSURES



When inquiring check CP 7222 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

psia for any mixture of hydrocarbons from methane to n-heptane, including unsaturates, are covered. Fugacity charts for higher pressures go from 1000 to 3600 psia.

Instructions for use and sample calculations for bubble points, dew points and equilibrium flash points are included. Remit total of \$20 for the 2 volumes on pressures from 14.7 to 1000 psia, and an additional \$10 for volume of fugacity charts, direct to Chemical Engineering Div., The M. W. Kellogg Company, Dept. CP, 225 Broadway, New York 7, N. Y. Or, when inquiring, specify CP 7223 on handy form, pages 2 and 3.

Tabulates properties of alloy castings

Handy reference chart tabulates alloy designations, applications, properties, and analyses for 32 stainless, corrosion-resistant alloy castings. Chart measures 11 x 25½"; folds into convenient letter-head size. Reverse side tabulates high-temp properties of alloys. "Cooper Alloy 1950 Reference Chart", issued by The Cooper Alloy Foundry Co., Dept. CP, Hillside 5, N. J. When inquiring specify CP 7224 on handy form, pages 2 and 3.

Specifies pumps, engines, and compressors

Complete line of manufacturer's products is represented in 2-color, illustrated folder. Includes piston pumps; diesel, gas, or/and gas-diesel engines; and various compressor units. Gives engine designation, range of sizes, design and construction, and application information for entire line.

"Cooper-Bessemer Products", issued by The Cooper-Bessemer Corporation, Dept. CP, Mount Vernon, O. When inquiring specify CP 7225 on handy form, pages 2 and 3.

Classifies steel castings, lists specifications

Chart, entitled "General Engineering Types of Steel Castings", is intended to serve as a reliable reference guide to economical production of steel castings. Classifies castings according to their tensile strength — tabulates 6 general types of carbon steels between 60- and 100-thousand psi, and 9 general types of low-alloy steels between 70- and 200-thousand psi. For each classification, following information is listed: current specification, yield point, elongation, reduction in area, Brinell hardness, much more. Indicates applications for each.

Castings chart measures 13 x 20½", and is issued by F. Kermit Donaldson, Executive Vice President, Steel Founders' Society of America, Dept. CP, 920 Midland Bldg., Cleveland 15, O. When inquiring specify CP 7226 on handy form, pages 2 and 3.

Illustrates and describes combustion controls

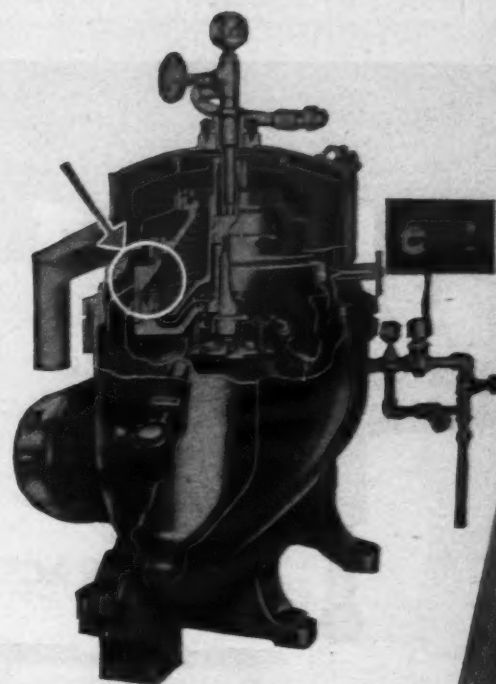
Combustion controls for oil- and gas-fired furnaces, ovens, boilers, kilns, and other heating equipment are featured in 4-page, 2-color bulletin. Units provide safe start, safe operation, and safe shut-off. Covers principle of operation, and application and program information for 7 models.

Bulletin F2-1, issued by Wheelco Instruments Company, Dept. CP, Chicago 7, Ill. When inquiring specify CP 7227 on handy form, pages 2 and 3.

APRIL, 1950

ANNOUNCING THE NEW SHARPLES DV-2

A MAJOR ADVANCE IN CENTRIFUGE ENGINEERING

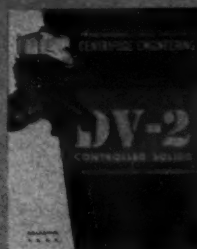


Indicated in the circle is one of the ten solids discharge valves which are externally controlled for duration and frequency of opening.

Don't overlook the significance of **CONTROLLED SOLIDS DISCHARGE** introduced in the new Sharples DV-2 Centrifuge. It has made possible high efficiency centrifugal separations that were never practical in the past.

The Sharples DV-2 maintains high efficiency and thru-put capacity, and it adds three important factors: (1) The ability to handle a wide variety of solids; (2) flexible control over the consistency of the solids discharge; and (3) minimized loss of liquid.

It may be that the Sharples DV-2 can extend the economy of centrifugal separation to your processing. If so, it will pay you well to investigate.



Complete operation of the Sharples DV-2 Centrifuge is described and graphically illustrated in Bulletin 1262. Write for your copy today.



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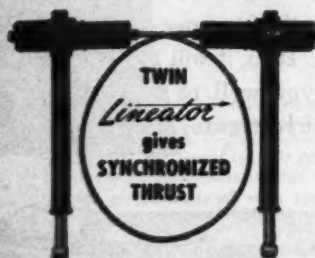
When inquiring check CP 7228 on handy form, pgs. 2-3



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Responding to popular demand our electrically operated Lineator, Linear Actuators and Rotorac, Rotary Actuators have been modified for industrial applications to permit operation directly upon 110 volt, 60 cycle, single phase, A.C. These highly dependable products, originally developed for exacting aircraft requirements, are finding increasing acceptance for automotive and industrial installation where remote application of power is required.



Mechanically synchronized Twin Lineators or Rotoracs offer a simple solution to the difficult problem of maintaining equal motion at separated points.

POSITIONING CONTROL is available for automatic or manual regulation.

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When inquiring check CP 7229 on handy form, pgs. 2-3

NEW LITERATURE

Records sulfur concentrations as low as 0.1 ppm

Instrument which continuously records the concentration of sulfur compounds in a gas stream or atmosphere is featured in a 4-page, 2-color illustrated bulletin. Hydrogen sulfide, sulfur dioxide, mercaptans, thioethers, thiophene, and organic disulfides can be recorded in concentrations as low as 0.1 ppm. Bulletin covers performance, operation, specifications, and a rental service. Includes a typical record made by instrument, as well as photos and a diagram.

Bulletin CEC-1810A, issued by the Consolidated Engineering Corporation, Dept. CP, 620 N. Lake Ave., Pasadena 4, Calif. When inquiring specify CP 7230 on handy form, pages 2 and 3.

Details ways to improve hiring of personnel

"Developing a Better Personnel Selection Program" is the title of a 6-page pamphlet which discusses advantages in using planned-interview forms when hiring executive, sales, office, and plant personnel. Details ways for improving hiring methods. Pamphlet is available from The Dartnell Corporation, Dept. CP, 4660 Ravenswood Ave., Chicago 40, Ill. When inquiring specify CP 7231 on handy form, pages 2 and 3.

Your safety valve may be too small!

Twelve-page bulletin includes an article entitled 'Required Relieving Capacities for Safety Valves'. Points out that investigations show capacities of safety valves in lower pressure ranges are far inadequate if size is limited to that of piping. Illustrates method of installing safety valve on low pressure side of reducing valve. Includes charts for determining size and required relieving capacity of safety valves.

Bulletin features line of safety valves — 1/2 to 6" sizes. Tabulates capacities, includes specifications, presents illustrations. Bulletin No. 250, issued by the Marine & Industrial Products Co., Dept. CP, 3731 Filbert St., Philadelphia 4, Pa. When inquiring specify CP 7232 on handy form, pages 2 and 3.

Characterizes 11 resins, 7 oils

Alkyd resin solutions, solid resins, fish oils (refined and processed), processed linseed oils, and processed soyabean oils are products characterized in manual. Covers general properties, uses, specifications, and recommended driers for 11 resins. Includes physical and chemical properties for 7 oils. "Crown Oil Manual", issued by the Crown Wittenberg Chemical Corporation, Dept. CP, 2-16 Forty-Ninth Ave., Long Island City 1, N. Y. When inquiring specify CP 7233 on handy form, pages 2 and 3.

Uses of controlled crystallization wider than generally known

A 16-page illustrated booklet describes crystallization equipment of A/S Krystal, Norway. Literature covers applications, equipment features, savings and advantages, operating range and research and pilot plant studies. Typical chemicals thus crystallized include nitrates and nitrites, chlorides and chlorates, sulfates, phosphates, chromates, oxalates.

Eight specific applications are listed, such as concentra-

Is this the solution to your lubrication problems, too?

FOR more than 20 years, Farval has been saving money for users. Through efficient, dependable lubrication of machines and industrial equipment of all kinds, Farval saves 4 ways: It saves oiling labor, it saves lubricant, it reduces bearing expense, it eliminates down time.

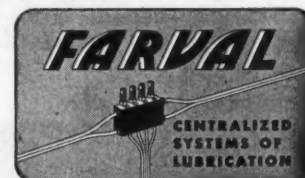
The Farval System is a positive mechanical method of delivering oil or grease under pressure to a group of bearings from one Central Station, in exact quantities, as often as desired. It consists of a central pumping unit, two main supply lines and a measuring valve for each bearing.

Catalog No. 25 and "Case Studies" give you the facts and figures. The Farval Corporation, 3257 East 80th Street, Cleveland 4, Ohio.



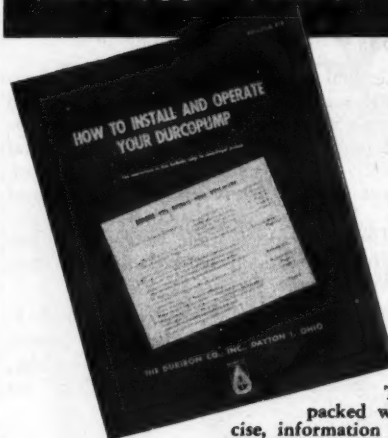
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When inquiring check CP 7234 on handy form, pgs. 2-3

HERE'S A COMPLETE INSTRUCTION BOOK ON CORROSION-RESISTING CENTRIFUGAL PUMPS



Twelve pages packed with useful, concise, information on how to get the most out of your chemical pump. Written and illustrated to help you avoid common errors in the installation and operation of Durcopumps or other centrifugal pumps handling corrosives. Write today for your free copy of bulletin 812A.

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DAYTON 1, OHIO
Branch Offices in Principal Cities



DURCO Adv. 56-GM

When inquiring check CP 7235 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

tion of calcium chloride liquors saturated with gypsum in the alkali industry; concentration of waste liquors from paper and pulp industry, particularly sulfite waste liquor saturated with gypsum; and installations where sea water containing gypsum is evaporated. Bul. 50-A, issued by Struthers Wells Corporation, Dept. CP, Warren, Pa. When inquiring specify CP 7236 on handy form, pages 2 and 3.

Discusses gasoline and oil hose

Guide provides data to aid selection, installation and servicing of oil and gasoline hose, and hose to handle propane and butane, liquefied petroleum gases. Covers principal types for delivery service to industrial buildings, and heavy-duty hose for barge, dock and sea-loading operations.

Issued by New York Belting and Packing Co., Dept. CP, 1 Market St., Passaic, N. J. When inquiring specify CP 7237 on handy form, pages 2 and 3.

Interrupts heavy currents, quenches arc

Line of high-capacity interrupting, Type A safety switches, which handle high momentary currents and short-circuits without damage, is featured in multi-color folder. Describes center-front control, arc-quenching action, and roller-cam action (which eliminates dead centering). Available in 30, 60, and 100 amp sizes with 2, 3, or 4 poles, and either fusible or non-fusible types.

Specifies line; shows exploded view of switch with integral parts. Includes other illustrations. Folder TEC-10, issued by The Trumbull Electric Manufacturing Company, Dept. CP, Plainville, Conn. When inquiring specify CP 7238 on handy form, pages 2 and 3.

Describes special equipment used at coal-to-oil plant

Construction and engineering details of equipment especially designed and built for the Bureau of Mines' Coal-Hydrogenation Demonstration Plant at Louisiana, Mo., are described in a 40-page illustrated publication. Items discussed include high-pressure vessels, converters, preheaters, heat exchangers, hydrogen production and compression, nitrogen gas production and compression, pumps, high-pressure tubing, flanges, fittings and valves, low-pressure auxiliary operations.

Literature includes brief description of coal-hydrogenation process at the plant, flow sheets, photographs of equipment, engineering drawings and graphs. Report of Investigations 4584, "Special Equipment in the Coal Hydrogenation Demonstration Plant," issued by Publications Distribution Section of the Bureau of Mines, 4800 Forbes St., Pittsburgh 13, Pa.

Trucks, casters, wheels fill 64 pages

Very complete line of trucks, casters, and wheels is cataloged in 64-page, 2-color booklet. Trucks include platform, superstructure, wagon, hand, pry types; wheels are either rubber or metal. Illustrates, describes and specifies line. Catalog No. 50, issued by Thomas Truck & Caster Co., Dept. CP, 50 Mississippi River, Keokuk, Iowa. When inquiring specify CP 7239 on handy form, pages 2 and 3.

APRIL, 1950

FOR CONDENSER TUBES

SEE
REVERE

MOST plants operating a number of condensers, heat exchangers and similar equipment using condenser tubes find that tube life varies, a bundle in one condenser lasting longer than in another. This points up the fact that obtaining longer life hinges on detailed study of individual conditions, such as Revere is ready to make for you.

Take the case of a shell-type condenser following a high stage compressor. Admiralty tubes lasted about a year, red brass less, and treatment of the gas had produced no improvement. Failure was due to thinning at the cool end, and cracking at the hot end. Micro-photographs taken in the Revere Laboratory showed transgranular corrosion-fatigue cracks originating from the base of the pits on the vapor side of the tube. Hence it was evident that failure was due to a combination of corrosion and vibration.

The remedies recommended were: redesign of inlets and baffles, reduction of vibration in adjoining machines, bracing of the condenser, and alkali treatment to raise the pH up to 7.5-8.5. The result: substantially increased service from inhibited Admiralty tubes.

Revere stands ready at all times to work with tube users in the endeavor to extend the period between re-tubings.

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COPPER AND BRASS INCORPORATED

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When inquiring check CP 7240 on handy form, pgs. 2-3

TWILL

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TWILL DUTCH SINGLE

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USING *Right* METALLIC FILTER CLOTH for *Your* FILTRATION

If you are in doubt or would like to try another style weave, write us in detail about your filtration step. We make all five of the standard weaves mentioned above. We are in position to turn out special weaves, if necessary. And we make cloth from all malleable metals, including the noble metals.

All Newark Metallic Filter Cloth is manufactured in a wide range of meshes. It is available in rolls, cut and gasketed to fit your filter presses, or made up into filter elements. We have large stocks of standard weaves on hand to make prompt shipment.

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ACCURACY

Newark Wire Cloth COMPANY

336 VERONA AVENUE

NEWARK 4, NEW JERSEY

When inquiring check CP 7241 on handy form, pgs. 2-3

NEW LITERATURE

Vinyl butyral resins for coatings, adhesives

Information on vinyl butyral resins for formulation of coatings and adhesives is given in 22-page booklet. Discusses use of resins in wash-primer type of metal conditioners, other coatings and adhesives. Includes suggested formulations.

Covers general properties of 2 grades of resins available; tabulates their compatibility with gums, solvents, other resins. "Vinylite-Vinyl Butyral Resins", issued by the Bakelite Corporation, Unit of Union Carbide and Carbon Corporation, Dept. CP, 300 Madison Ave., New York 17, N. Y. When inquiring specify CP 7242 on handy form, pages 2 and 3.

1-layer latex gloves for added strength

Depositing latex on glove forms in 1 layer yields rubber gloves with added uniform strength, resistance to snags and tears — resulting in greater hand and arm protection. Cuff-length and gauntlet styles are either for oil-resisting or acid-resisting service. Includes smooth and rough surfaced types, as well as light and heavy gauge, and straight and curved finger types.

Four-page, 2-color bulletin illustrates, describes, and specifies these gloves. Features canvas coated gloves. Catalog 9035, issued by The B. F. Goodrich Company, Dept. CP, Akron, O. When inquiring specify CP 7243 on handy form, pages 2 and 3.

Selects right lubricant for specific use

Thirty-page booklet is handy guide for selecting proper lubricant for specific applications. Lists machine or equipment to be lubricated, then recommends lubricant and methods of its application. Well illustrated and includes complete specifications. "Keystone Application Guide", issued by the Keystone Lubricating Company, Dept. CP, 21st and Lippincott Sts., Philadelphia 32, Pa. When inquiring specify CP 7244 on handy form, pages 2 and 3.

Line water heaters with copper

Copper lined water heaters for intermittent-demand, rust-free hot water are featured in 4-page, 2-color folder. Consist of complete copper heater housed in heavy steel shell — achieving anti-corrosion from copper and strength from steel.

Includes specifications: Storage ca-

MACHINED ENDS
Assure
Perfect Welding

FLOWLINE
Trade Mark

STAINLESS STEEL WELDING FITTINGS...
for All Corrosion-Resisting Applications

It is possible to construct any stainless piping system with a minimum of equipment, using FLOWLINE fittings, simply by straight cutting of tubes, and plain butt welding. The ends of all FLOWLINE fittings are accurately machine tool cut—fittings of wall thickness over .083" are beveled to 37½° with approximately 1/16" straight face; those with wall thickness of .083" or lighter are cut straight, not beveled. Consequently, fitting time is minimized, and faster, uniformly sound welds are assured.

These fittings, manufactured in Stainless Types 304, 316, and 347, are available to match pipe and tubing of various wall thicknesses in sizes from ¾" through 12". They are annealed, cleaned, and passivated for maximum corrosion resistance.



The Most Complete Line of Stainless Steel Welding Fittings.

WELDING FITTINGS CORP.
NEW CASTLE, PENNSYLVANIA

Formerly Stainless Alloy Division - Pittsburgh Piping and Equipment Co.

Send for Bulletin S-310

World's Largest Manufacturer of Stainless Steel Welding Fittings



When inquiring check CP 7245 on handy form, pgs. 2-3

DAY
"Autoclean"
DUST FILTER

PERMITS
Separated
DUST STREAMS

PRODUCT NO. 1
PRODUCT NO. 2
PRODUCT NO. 3
PRODUCT NO. 4

Licensed by
H. J. Hersey, Jr.

One DAY "Autoclean" Dust Filter can handle several different product streams simultaneously *without mixing*. This is done by installing splitters in the receiving plenum and connecting separate fan units as required. Individual screw lock feeders under each row of tubes discharge products separately. Thus one DAY Filter does the work of several individual units.

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DAY Advantages

Write-to-DAY for
Bulletin No. 491

- Continuous-Automatic
- Constant Air Volume
- High Air to Cloth Ratios



The DAY Company

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Representatives in U. S.: Wirth, B. & Co. and Willard, Chicago

When inquiring check CP 7246 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Don't install a fluid filter until you see how much money you can save with **Micro-Klean**



*This free bulletin tells you about
a make of fluid filter that*

**A. costs less than other methods
of filtration.**

Low initial cost. Minimum maintenance.
Higher capacity.

B. performs better than any similar filter.

Guaranteed to remove all solids larger than specified plus a large proportion down to 1 micron. Double dirt capacity—half the replacement cost.

Write us about Cuno MICRO-KLEAN, requesting Bulletin MK-035. Address Cuno Engineering Corporation, 1625 South Vine Street, Meriden, Connecticut.

No Fluid Is Better than Its Filtration



Fluid Conditioning

Removes More Sizes of Solids
from More Types of Fluids

When inquiring check CP 7247 on handy form, pgs. 2-3

Facts 'n Figures — on the *high* quality, *low* cost



- ★ All bronze—stainless steel shaft.
- ★ Pressures up to 80 lbs.—raises city pressure 80 lbs.
- ★ Delivers up to 8 GPM.
- ★ Speeds from 1000 to 2200 RPM.
- ★ Long life—rugged construction, only one moving part, double ball bearings.
- ★ Weighs only 12 lbs.—suitable for horsepower ratings up to ¾.
- Pump only list price **\$35.00**
- Pump with 3" O.D. V-Groove sheave list price **\$6.50**
- Pump with base and coupling list price **\$40.00**

ROY E. ROTH CO., 2474 Fourth Ave., Rock Island, Ill.

ROTH PUMPS

When inquiring check CP 7248 on handy form, pgs. 2-3

APRIL, 1950

NEW LITERATURE

capacities — 94 to 10,000 gal; heating capacities (40-180°F) 100 to 25,000 gal/hr. Tabulates steel thicknesses according to ASME and standard construction. "Indestructo Copper-Lined Hot Water Storage Heaters", issued by The Patterson-Kelley Co. Inc., Dept. CP, East Stroudsburg, Pa. When inquiring specify CP 7249 on handy form, pages 2 and 3.

Formulate disinfectants with alkylated phenol

Fourteen-page technical bulletin describes uses of mono-tert-butyl-metacresol in formulating germicidal and disinfectant preparations. Commercially satisfactory disinfectants may be made from this liquid, alkylated phenol, by using either water-soluble or water-insoluble blending and emulsifying agents.

Bulletin covers general disinfectant information, typical disinfectant formulations, and formulations with methyl-naphthalene. Technical Bul. No. C-9-130-1, issued by Koppers Company, Inc., Chemical Division, Dept. CP, Pittsburgh 19, Pa. When inquiring specify CP 7250 on handy form, pages 2 and 3.

Catalogs assemblies of lock washers, screws

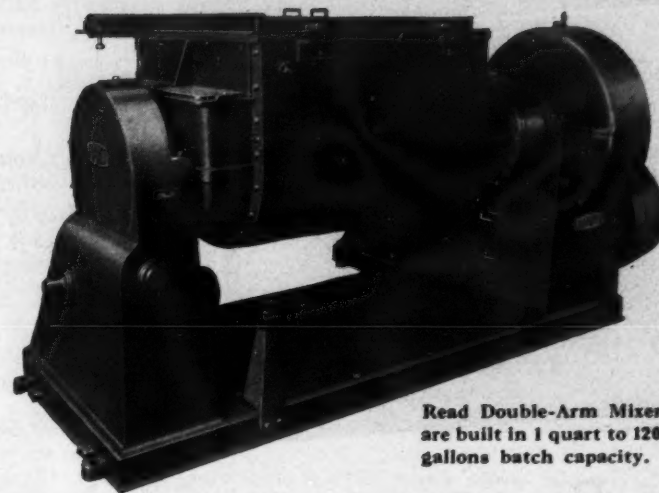
Screw and lock-washer assemblies are featured in 28-page catalog. Screw styles include round, pan, truss, fillister, flat, and oval heads — both slotted and Phillips recessed-head types. Also hex styles. Lock washers include internal, external, countersunk, spring, flat metal, dome, fiber, etc.

Assembly of washer to screw eliminates separation of two parts during handling and driving operations; washers are free to rotate on screw shank below head. Catalog No. 80-A, issued by the Pheoll Manufacturing Company, Dept. CP, 5700 Roosevelt Rd., Chicago 50, Ill. When inquiring specify CP 7251 on handy form, pages 2 and 3.

Features anti-corrosion, high-temp equipment

"Specialized Alloy Fabrication" is an illustrated booklet featuring a line of processing equipment which resists heat and corrosion. Includes enameling burning tools, pickling fixtures, heat-treating carriers for services to 2300°F, and alloy chain which meets many requirements. Booklet is issued by Strohecker Incorporated, Dept. CP, Enon Valley, Pa. When inquiring specify CP 7252 on handy form, pages 2 and 3.

MIXING CYCLE *Speeded Up* PEAK LOADS *minimized*



Read Double-Arm Mixers
are built in 1 quart to 1200
gallons batch capacity.

OVERLAPPING SIGMA BLADE ACTION in READ Double-Arm Mixers gives you a shorter mixing cycle with lower peak loads



Speeding up the mixing cycle and minimizing peak loads are definite advantages in batch mixers. Overlapping sigma blade action in Read Double-Arm Mixers does both. Formation of cylinders of material about the arms is avoided. They handle even the heaviest viscous materials with ease, smoothness, and production economy.

Some advantages: One-piece base to insure permanent alignment and rigidity—Mixing chamber accurately machined on double-arc bottom to insure close clearance with machined arms—Vacuum mixer has single packing gland construction to eliminate contamination or oxidation—Baffled jackets for even, efficient temperature control—Heavy-duty construction throughout—Available with or without jackets, of vacuum or non-vacuum design—Single, multi-speed, or variable speed motors for plastic processes.

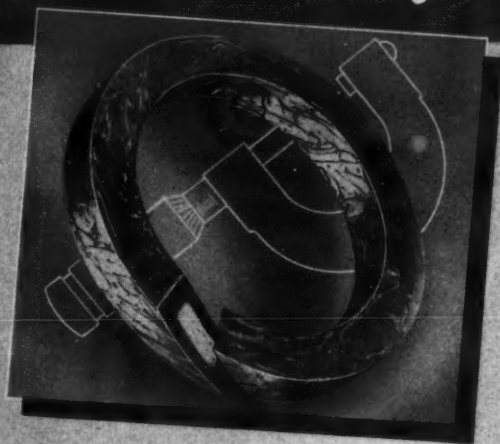
Write Read for literature on Double Arm Mixers. If you have a mixing problem, let us offer you our advice.

READ

READ MACHINERY DIVISION
of The Standard Stoker Company, Inc.
YORK 7, PENNSYLVANIA

When inquiring check CP 7253 on handy form, pgs. 2-3

DURAMETALLIC Packings



PRECISION made die-molded packing rings by Durametallic present 3 points of sealing satisfaction:

1. They provide a perfect fit for your stuffing box.
2. They save time, labor and eliminate waste.
3. They are tailor-made to insure a more accurate packing installation.



**Write today for Your
Copy of File No. DMCP**

Containing illustrated bulletins on Durametallic Packings—with specifications and data toward answering your sealing problems.

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SAN FRANCISCO • SEATTLE • TULSA • YOUNGSTOWN, O.

When inquiring check CP 7254 on handy form, pgs. 2-3

Page 74

NEW LITERATURE

Explains use of resistant lining on wood and steel tanks

Bulletin C-6A presents information on how to repair and line wood tanks with resistant coatings, one with and one without carbon. Bulletin C-7 gives instructions to follow in lining steel tanks with these materials. Each of the one-page leaflets includes such pertinent information as: surface preparation, mixing, application, drying, etc.

Issued by Carboline Co., Dept. CP, 7603 Forsyth Blvd., St. Louis 5, Mo. When inquiring specify CP 7255 on handy form, pages 2 and 3.

Relates some advances in cushioned clamp line

Bound within looseleaf cardboard covers, 28 pages tell of clips, clamps and brackets for support of pipe lines and other equipment. Fifteen types are included as standard equipment in aluminum, steel and stainless steel. Information is presented on all as to finish, specifications and sizes.

Various cushioning materials are available for use on the clamps. Neoprene is standard for general use; five other materials are now made. These are (1) a material resistant to aromatic fuels, (2) a conductive cushion (test reports are given), (3) one which is resistant to Skydrol fluids, (4) a high-temperature cushion and (5) a fire-resistant material.

Replete with dimensional and application drawings, the 1950 catalog is issued by Thomas Associates, Dept. CP, 4607 Alger St., Los Angeles 39, Calif. When inquiring specify CP 7256 on handy form, pages 2 and 3.

Wide range of units aids selection of conveyors

Standardized gravity and power conveyor units are illustrated and described in a 24-page two color bulletin. Complete specifications, detailed photos and views of actual installations are presented in connection with the following equipment: all-purpose roller sections, roller curved sections, wheel straight sections, wheel curved sections, roller lightweight conveyors and a variety of conveyor section supports.

Advantages of mobile belt conveyors for loading and stacking are emphasized. A particularly versatile mobile belt unit is the "Extendoveyor".

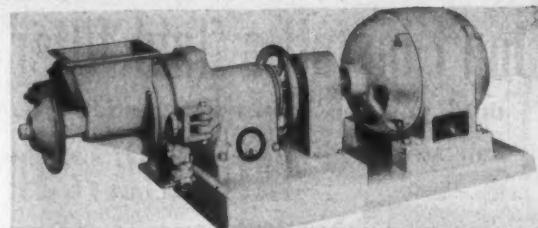
It can be extended or retracted quickly to speed and simplify handling and loading operations in warehouses, box cars and trailers. Made in several sizes, the range of the largest model is indicative of its flexibility. This unit extends to a length of 46' 3" from a retracted length of 9' 10".

Bulletin 63-A issued by Standard Conveyor Co., Dept. CP, St. Paul 9, Minn. . . or for more information check CP 7257 on handy form, pages 2 and 3.

Select proper reducing valve easily with wall chart

Selection of the correct reducing valve for a specific service is made easily and expertly by means of a handy 8-1/2 x 11" selector chart which lists reduced pressure limits and other factors. Used in conjunction with a 24-page illustrated bulletin, the chart also helps determine proper valve sizes. Valve suitable for dead-end service are likewise indicated.

Too often, the manufacturer points out, valve sizes are



GRINDS, MIXES, BLENDS

Bauer 8-IN. ATTRITION MILL

Any combination of materials capable of being pulverized can be ground, mixed, and blended in this Bauer Single-Disc Attrition Mill. The ingredients are fully dispersed, resulting in complete homogeneity.

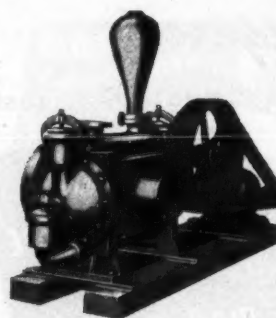
The mill illustrated is equipped with a screw feeder which assists the blending process. Accurate adjustment of the discs for coarse or fine grinding is made by means of a large hand wheel with graduated dial. Many patterns of discs are available to meet specific requirements.

Complete information on this and other Bauer Attrition Mills will be gladly furnished. Give us an idea of the kinds and quantities of materials to be processed so that we can be definite in our recommendations.

THE BAUER BROS. CO.

1728 Sheridan Ave., Springfield, Ohio

When inquiring check CP 7258 on handy form, pgs. 2-3



SHRIVER DIAPHRAGM PUMP Cuts Maintenance Costs Way Down

✓ No Stuffing Box.

✓ No Leakage—No Loss.

✓ No Wear on Working Parts.

✓ Costs Less to Operate.

✓ Easier to Maintain.

Imagine how long any ordinary pump would last, for example, handling hot glue plus emery! But because this highly abrasive material is confined to the

liquid ends and does not come in contact with the working parts, the Shriver Diaphragm Pump design limits the abrasive action to only a few, inexpensive, easily replaceable parts. Thus, on "tough-to-handle" fluids the Shriver Diaphragm Pump gives long life, economical service instead of being scrapped because of excessive wear. Bulletin 126 tells an interesting pump performance story. Get a copy.

T. SHRIVER & COMPANY, INC.
846 HAMILTON ST. HARRISON, N. J.

When inquiring check CP 7259 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

determined solely from pipe sizes, resulting in a valve much too large for required flow. Such valves operate in nearly closed position and are subject to chattering and wire-drawing. Accurate regulation is affected. Also, in many cases, valve users specify valves for dead-end service that are not tight-closing.

Valve selector chart and Bul. 148 are issued by Klipfel Valves, Inc., Div. of Hamilton-Thomas Corp., Dept. CP, Hamilton, Ohio. When inquiring specify CP 7260 on handy form, pages 2 and 3.

590 fire-hazard materials — how to extinguish

Over 590 chemical, gas, and common fire-hazard materials — with recommended fire-fighting agent to use on each — are alphabetically listed in 36-page "Fire Hazard Index". Discusses the elements of fire, types of fires; features a line of dry-chemical extinguishers. Index is issued by Randolph Laboratories, Inc., Dept. CP, 8 East Kinzie St., Chicago 11, Ill. When inquiring specify CP 7261 on handy form, pages 2 and 3.

Processing equipment — A to Z

Tank and hopper cars, dryers, coolers, thickening screens, dewaterers, filters, mixers, thickeners, evaporators, floating roofs, vapor seals, gas holders, and specially fabricated equipment are illustrated and described in 24-page, 2-color bulletin. Represents manufacturer's broad scope of manufacture.

"General American", issued by the General American Transportation Corporation, Dept. CP, 135 S. LaSalle St., Chicago 90, Ill. When inquiring specify CP 7262 on handy form, pages 2 and 3.

Controls furnace pressure, increases efficiency

Furnace pressure controls for metallurgical and other industrial furnaces are feature of 12-page catalog. These units increase combustion efficiency, extend refractory life, and raise production quality, it is reported. Controls can be automatically and manually operated. Units sense pressure changes in furnace and operate a butterfly damper in stack. Catalog covers details of operation, typical applications, maintenance and installation, and component equipment. Profusely illustrated.

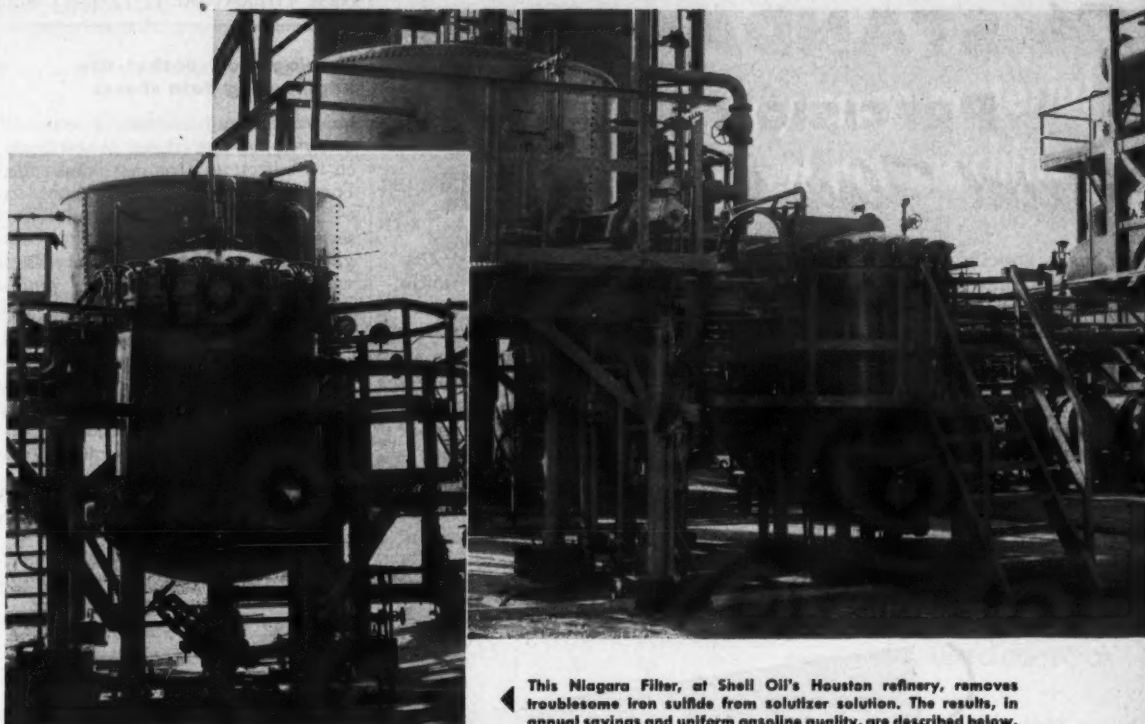
Catalog ND69-01-600(1); issued by the Leeds & Northrup Company, Dept. CP, 4934 Stenton Ave., Philadelphia 44, Pa. When inquiring specify CP 7263 on handy form, pages 2 and 3.

Turn to Page 6

for an announcement of interest to

- Engineers
- Technicians
- Chemists
- Lab Workers

— and Other Readers of This Magazine



◀ This Niagara Filter, at Shell Oil's Houston refinery, removes troublesome iron sulfide from solutizer solution. The results, in annual savings and uniform gasoline quality, are described below.

NIAGARA FILTER keeps Solutizer Solution "on-stream"

Shell Oil Company uses a Niagara Filter in its solutizer mercaptan extraction process and thereby effects "a significant annual saving."

Caustic solutizer solution is introduced into the extraction system, where it comes into contact counter-currently with the mercaptan-containing hydrocarbon fraction. The treated fraction and fat solutizer solution are withdrawn from opposite ends of the system.

A Niagara Filter was installed to remove the small amount of iron sulfide particles (averaging 20 microns) which gradually accumulate in fat solutizer solution. These insoluble materials in the system act as nuclei for troublesome emulsions and impair the effectiveness of the plant. The iron sulfide is contained in gasoline streams entering the solutizer plant.

The Niagara Filter has 16 stainless steel leaves with a total filter area of 322 sq. ft. It is delivering

solutizer solution free from iron sulfides, at a flow rate of 2700 GPH—and is doing this continually for a period of 64 hours before it is necessary to clean filter.

Continuous filtration helps to keep operation of the solutizer plant at high efficiency. Gasoline production remains uniformly high in octane number and tetraethyl lead susceptibility.

Niagara all-metal filters always save through elimination of filter cloths, simplicity of operation, increased filtration rates and long life of the stainless steel solderless filter leaves. Niagara filtration engineers are experienced in all types of filtration processes. They may be able to help you with your problems, and will be glad to test samples and tell you about pilot filter rental and other services. A letter from you outlining the problem will bring a prompt reply without obligation. Use the coupon below to order Bulletin G-447 for your files.



NIAGARA FILTER CORP., 3083 Main St., Buffalo 14, N. Y.

Please send me details of Niagara Pilot Plant Filter rental ☐ Bulletin G-447 ☐.

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TITLE _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____

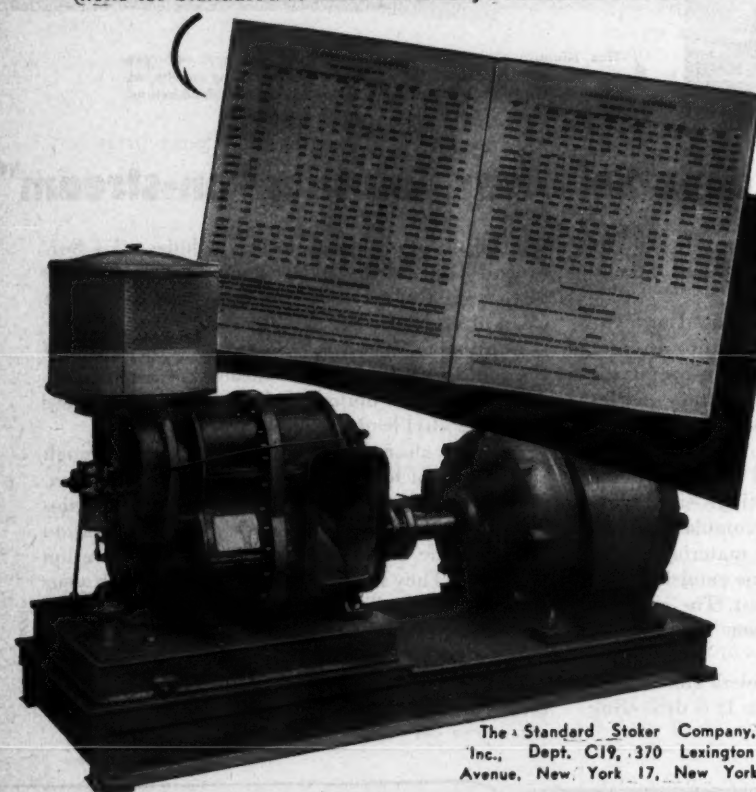
When inquiring check CP 7264 on handy form, pgs. 2-3

The **STANDARD** **DAIRE** **PRECISION BUILT** *Axial Flow* **BLOWER**

To meet specific and variable pressures, Standardaire Positive Displacement Blowers are built in a series of sizes to fulfill a wide range of capacity requirements from directly connected, standard speed motors—the modern method of producing just the amount of air required at the minimum cost. Direct-drive motor speeds also provide for an even air flow resulting in smaller pulsations that are easy to dampen out and do not create shock loads in the blower or delivery system. If the type of service demands other than direct drive, a pulley attachment can be readily applied to the blower for particular specifications.

The flexibility of speed and pressure possible with the Standardaire Blower eliminates a great number of blower types normally required in the positive displacement field—a desirable engineering advancement in blower design without disturbing fundamental principles.

For full information and a complete list of blower sizes, write for Standardaire Selection Chart, Publication No. 86.



The Standard Stoker Company,
Inc., Dept. C19, 370 Lexington
Avenue, New York 17, New York.

THE STANDARD STOKER CO. INC.

Standard Stoker



NEW YORK • CHICAGO • ERIE • MONTREAL

When inquiring check CP 7265 on handy form, pgs. 2-3

NEW LITERATURE

Catalogs vest-pocket-size engineering data sheets

Unusually broad selection of technical data may now be carried in vest pocket, or kept in compact desk file. Forty-eight-page pamphlet, 3 3/4 x 6-3/4" and punched for loose leaf insertion, is precisely same size as engineering and business data sheet which it catalogs.

Lists general headings — hydraulic engineering, chemistry, heating and refrigeration, materials, many more — under which numerous sections are available. Gives order number, prices, number of pages for sections. Sections are further divided into specialized sheets.

"Lefax Engineering and Business Data Sheets" catalog, issued by Lefax, Dept. CP, Philadelphia 7, Pa. When inquiring specify CP 7266 on handy form, pages 2 and 3.

Lab mixer is time-saver

Laboratory mixer is designed on the counter-rotation principle; is reported to be an efficient time-saver. Brochure describing the Counter-Rotating Mixer is issued by the Brookfield Engineering Laboratories, Inc., Dept. CP, Stoughton, Mass. When inquiring specify CP 7267 on handy form, pages 2 and 3.

Analyzes liquids, gases by their infra-red absorption

Instrument which analyzes liquids and gases by measuring their infra-red absorption is described in 4-page, 2-color illustrated bulletin. Suggests application in measuring atmospheric contamination (toxic concentrations), and in process control. Covers operation, selective analysis, sensitivity, and standard assembly.

Lists materials whose toxic concentrations can be measured by apparatus. Gives direct examples of applications to process control. Bulletin No. DZ-4, issued by Mine Safety Appliances Company, Dept. CP, Braddock, Thomas and Meade Sts., Pittsburgh 8, Pa. When inquiring specify CP 7268 on handy form, pages 2 and 3.

Ten resin emulsions for making textile finishes

Series of 10 resin emulsions, used as raw materials in compounding finishes for textiles, are described in detail in bulletin. Emulsions are free-flowing dispersions easily diluted with water; adapted to common methods of finishing textiles — padding, tum-

Yours for the asking!

NEW CATALOG with complete information Grinnell seamless carbon steel butt welding fittings and forged steel flanges



Write today for
your copy of
catalog WF-1930.



GRINNELL

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When inquiring check CP 7269 on handy form, pgs. 2-3

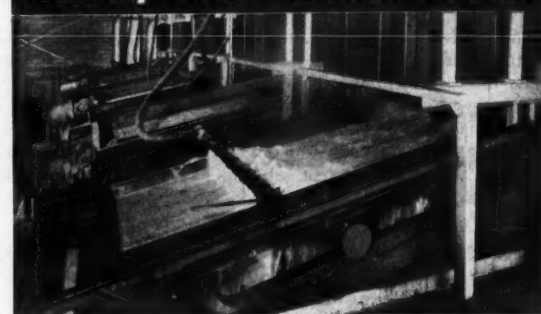
WELDING FITTINGS

90° elbows . . . long
radius, short radius, light
gauge, special wall thick-
nesses
45° elbows . . . long
radius, light gauge, special
wall thicknesses
180° returns . . . long
radius, extra long radius,
short radius, light gauge,
special wall thicknesses
tees . . . straight, reducing
crosses
reducers
laterals
lap joint stub ends
caps
saddles
backing rings

FORGED STEEL FLANGES

welding neck . . . 150 to
2500 lbs.
slip-on . . . 150 to 2500 lbs.
lap-joint . . . 150 to 2500
lbs.
threaded . . . 150 to 2500
lbs.
blind . . . 150 to 2500 lbs.
socket type . . . 150, 300,
600 lbs.
reducing . . . threaded and
slip-on: 150 to 2500 lbs.
orifice . . . slip-on; weld-
ing neck; welding neck,
ring joint; threaded: 300 to
1500 lbs.

Recover Solids and Clarify Your Waste Water



with LINK-BELT Vibrating Screens

These five screens, equipped with power-propelled traveling sprays, recover particles of pulp and return both the de-watered pulp and the clarified water back to the system.

Link-Belt vibrating screens are employed in many types of plants for separating liquids and solids, reducing stream pollution, sizing and dewatering, and recovering valuable by-products. Contact the nearest L-B office for recommendations.

LINK-BELT COMPANY

Philadelphia 40, Chicago 9, Indianapolis 6, Atlanta, Houston 1, Min-
neapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8.
Offices in Principal Cities.



Send
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1977-A

When inquiring check CP 7270 on handy form, pgs. 2-3

CHEMICAL PROCESSING



Name Your Need in CONDENSATION RETURN UNITS and Boiler Feed Pumps

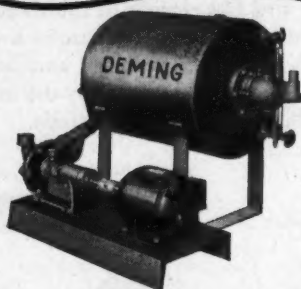
You can select from this exceptionally complete line the pumping unit best suited for each specific requirement. Various types of standard Deming Pumps are used with these units in a wide range of capacities. Operation of all units is automatic and dependable.

THE
DEMING CO.
522 BROADWAY
SALEM, OHIO

Deming Pumps

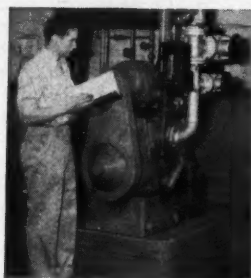


Write for 24-page illustrated catalog "BULLETIN NO. CR-1"



When inquiring check CP 7271 on handy form, pgs. 2-3

BETTER PRODUCTS with Higher Vacuum!



CHEMICAL processors can mechanize operations... improve their processes and products... reduce costs with higher vacuum.

Stokes MICROVAC Pumps assure maximum efficiency of chemical processing equipment...

and provide many valuable economies.

F. J. STOKES MACHINE COMPANY, 5980 TABOR ROAD, PHILADELPHIA 20, PA.

SEND for your free copy of "STOKES MICROVAC PUMPS for HIGH VACUUM"... 36 pages of useful, practical data.



F. J. STOKES MACHINE COMPANY

When inquiring check CP 7272 on handy form, pgs. 2-3

NEW LITERATURE

bling, spraying, knife and roller coating.

Discusses advantages of emulsions in finishes — long shelf life, fine particle size, mechanical and heat stability. Includes descriptions of methods used in applying emulsions. Bulletin P-5, issued by the American Polymer Corporation, Dept. CP, 101 Foster St., Peabody, Mass. When inquiring specify CP 7273 on handy form, pages 2 and 3.

Rubber processing equipment fills 16-page bulletin

Gyrating sifters; dissolvers and blenders; and pony, turbo, Cincinnati, and Mogul mixers are only some of the many pieces of rubber processing equipment illustrated, described, and specified in 16-page, 2-color bulletin. Bulletin No. 378, issued by The J. H. Day Company, Cincinnati 22, O. When inquiring specify CP 7274 on handy form, pages 2 and 3.

Specifies worm-gear speed reducers

Worm-gear speed reducers — both bottom and top drives — are described and illustrated in 28-page, 2-color bulletin. Reduction ratios for various sizes and types range from 3.1:1 to 100:1; horsepower from 0.06 to 258. Discusses worm-gearing, standard specifications, manufacture and selection of units, and complete dimensional and hp specifications. Features couplings for reducers.

Bulletin G-W8, issued by the De Laval Steam Turbine Company, Dept. CP, Trenton 2, N. J. When inquiring specify CP 7275 on handy form, pages 2 and 3.

Compiles data on 17 chemicals

Compilation of detailed technical data on 17 of manufacturer's new chemical products, previously reported in separate bulletins, is set forth in 120-page booklet. Covers aryl biguanides, guanyleurea salts, beta-chloropropionitrile, dialkyl cyanamides, glycolonitrile, lactonitrile, succinonitrile, potassium cyanate, and others.

Contains chemical and physical properties, reaction charts, potential applications, toxicity, and extensive bibliography for each product. "Collective Volume I", issued by New Products Development Department, American Cyanamid Company, Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. When inquiring specify CP 7276 on handy form, pages 2 and 3.

\$60. per day more material recovered per machine

the MIKRO hand of ECONOMY.

One large manufacturer processing a valuable material, recently found that each MIKRO-COLLECTOR* installed in his plant saved him an additional \$60 per day in salvaged material.

These and similar dust-saving, profit-making performances are being rolled up on all sides. They are directly attributed to these advantages which the MIKRO-COLLECTOR brings—

- ★ High percentage of recovery—99.9% plus.
- ★ Greatly reduced filter cloth area means low maintenance costs, quick and easy material changeovers.
- ★ Constant uniform flow of dust-laden air.
- ★ Filter rate 15-25 cfm. per sq. ft. of fabric.
- ★ Cleaning ring eliminates mechanical shaking.

The revolutionary principles employed in MIKRO-COLLECTOR design insure optimum recovery and sensational filter rates. Our research laboratory and test facilities are available for your dust collection problem without charge or obligation.

SEND FOR—your copy of new MIKRO-COLLECTOR bulletin

*Patents applied for by H. J. Hersey, Jr. and Pulverizing Machinery Company.

PULVERIZING MACHINERY COMPANY
60 Chatham Road Summit, New Jersey

MIKRO-COLLECTOR

Reg. U. S. Pat. Off.

By the makers of

MIKRO-PULVERIZERS and MIKRO-ATOMIZERS

PRESERVE OUR HERITAGE: FAITH, FREEDOM AND INCENTIVE

When inquiring check CP 7277 on handy form, pgs. 2-3

NEW LITERATURE

Hydraulic systems of 10,000 psi using O-ring packing

Ten pages hold much descriptive matter about O-rings of synthetic rubber for stationary and moving parts (those which have reciprocating or slow rotary motion). Such topics as suggested applications, methods of use and installation are discussed. A table provides relative physical and chemical resistance of seven synthetic rubbers. Dimensions of standard rings are presented in tabular form. Typical installation drawings, with dimensions, are shown.

Series of cross-sectional drawings reveals how the rings, in different types of grooves, act as the pressure is increased. Some installations are said to be giving excellent service at 10,000 psi. Catalog 9-A is issued by Minnesota Rubber and Gasket Co., Dept. CP, 3630-V Wooddale Ave., Minneapolis 16, Minn. When inquiring specify CP 7278 on handy form, pages 2 and 3.

Mounts shovel-cranes on trucks

Truck-mounted shovel-cranes with hydraulic controls are featured in catalog. Have travel speeds of 37 mph with 10 speeds forward and 2 speeds reverse. Lifting capacity is 12½ tons. Covers applications, construction details, and specifications. Catalog No. 2322, issued by the Link-Belt Speeder Corporation, Dept. CP, Cedar Rapids, Iowa. When inquiring specify CP 7279 on handy form, pages 2 and 3.

Pictures 6 ways to install mineral wool insulation

Six methods for applying felt, blanket, block, or board forms of mineral wool insulation on high-temp equipment are illustrated by line drawings in NBS bulletin. Covers application to tanks, vessels, pipes, etc. Includes data on characteristics and properties of mineral wool; gives recommended thicknesses for specific ranges of hot-surface temps; and lists auxiliary materials and explains installation techniques.

For Commercial Standard CS117-492, remit 15c direct to the Industrial Mineral Wool Institute, Dept. CP, 441 Lexington Ave., New York 17, N. Y.

Aids selection of dust collectors

Unit-type dust collectors with capacities ranging from 200 to 3,600 cfm are presented for easy selection in 4-page, 2-color bulletin. Includes 13 models — some outside-exhaust, some recirculating types. Specifications for units are tabulated. Gives recommended application data. Features accessory equipment. Bulletin 610, issued by the Agat-Detroit Company, Dept. CP, Ann Arbor, Mich. When inquiring specify CP 7280 on handy form, pages 2 and 3.

Mixers for chemical and industrial processors

General and special-purpose mixing equipment for chemical and industrial processors is covered by two illustrated booklets. The first, a 4-page bulletin, contains detailed information on 2 dispersion-type mixers, one being for industrial finishes and the other a general-purpose mixer.

An 8-page general catalog includes photos and operating details on manufacturer's mixers of ¾-gal to 2000-gal capacities; describes double-arm horizontal, tilting-type



THE "CUSHION STITCH" BAG CLOSURE

This famous stitch is tough enough to hold when bags are roughly handled. The "Cushion Stitch" absorbs strains, won't pull out, yet provides an easy-to-open closure. "D A" Bag-packer automatically applies tape with latex over the sewing — ET Bag-packer applies Dry Tape before sewing.



For tight and fast closing of multiwall paper bags from 25 to 100 pounds capacity — be sure to investigate these Bagpacker Machines. They are designed and serviced by the makers of Bagpak® Multiwall Bags . . . by the men who are familiar with your multiwall bag packing needs.

NEW "D A" BAGPAKER

This is the "tight-seal packer" for use when materials are high-priced or need protection. Automatically applies sealing tape over the famous "Cushion Stitch" — prevents sifting

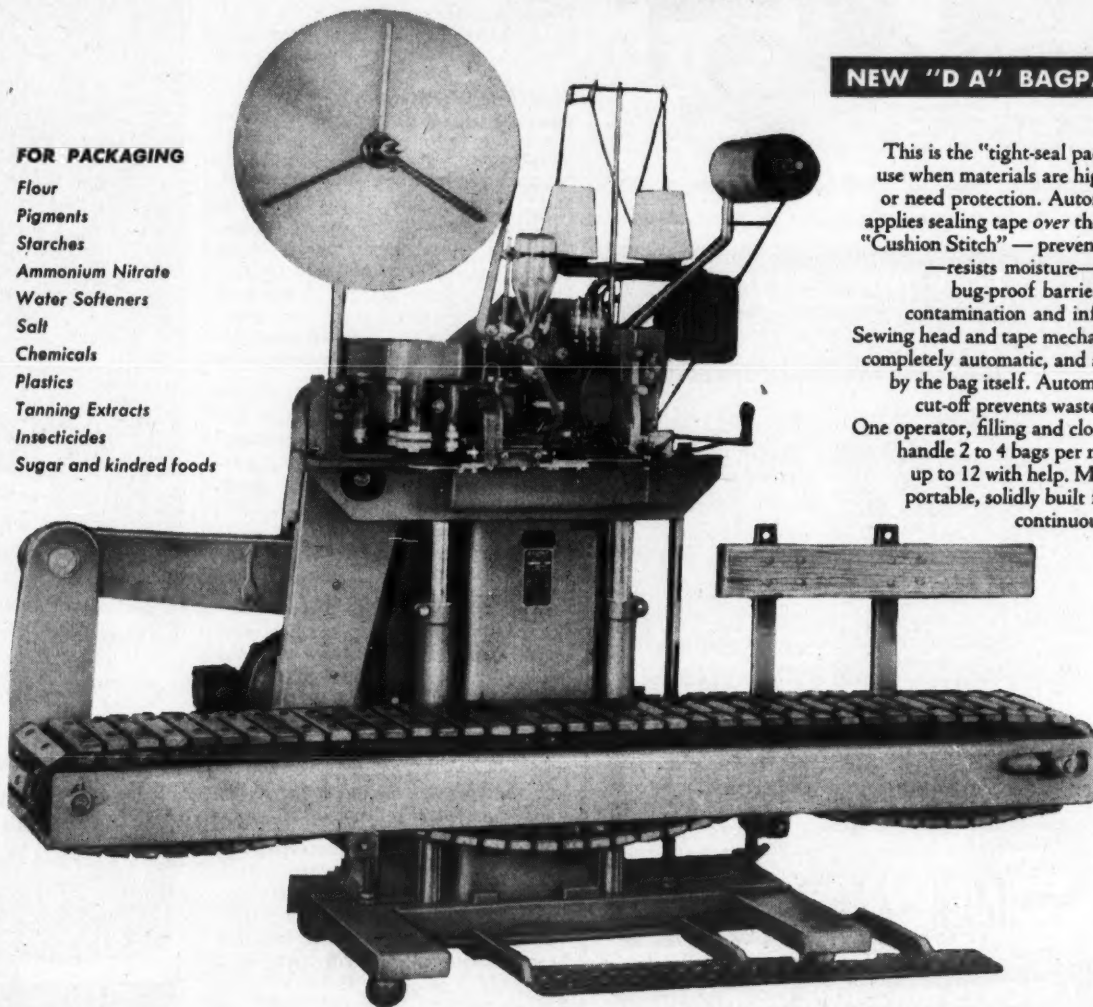
—resists moisture—provides bug-proof barrier against contamination and infestation.

Sewing head and tape mechanism are completely automatic, and activated by the bag itself. Automatic tape cut-off prevents waste of tape.

One operator, filling and closing, can handle 2 to 4 bags per minute—up to 12 with help. Machine is portable, solidly built for hard, continuous usage.

FOR PACKAGING

Flour
Pigments
Starches
Ammonium Nitrate
Water Softeners
Salt
Chemicals
Plastics
Tanning Extracts
Insecticides
Sugar and kindred foods



how

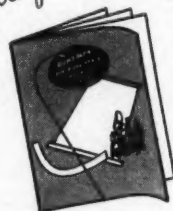
TO DESIGN AND SERVICE BAG PACKING MACHINES

NEW E T BAGPAKER

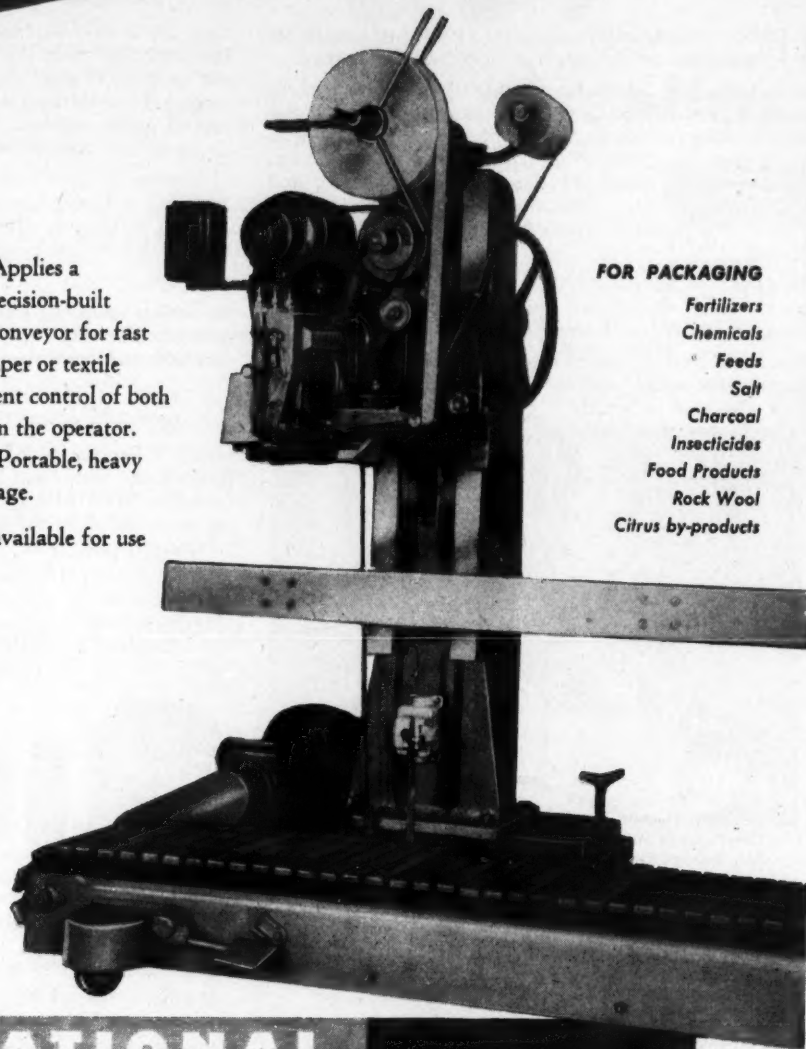
Semi-automatic—self-contained. Applies a sewn-thru "Dry Tape" closure. Precision-built sewing head is synchronized with conveyor for fast and fool-proof closing of either paper or textile bags. Foot-pedal provides convenient control of both sewing head and conveyor. Easy on the operator. Permits more production per day. Portable, heavy duty, built for hard continuous usage.

FT Bagpaker, without conveyor, available for use with existing conveyor systems.

write for booklet today



For full information, ask for booklet 200 P entitled: "Quick Facts on Bagpak Machinery and Bagpak Multiwall Bags."



FOR PACKAGING

Fertilizers

Chemicals

Feeds

Salt

Charcoal

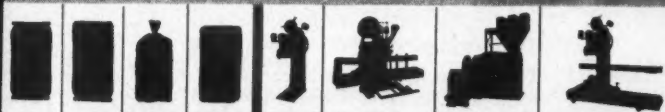
Insecticides

Food Products

Rock Wool

Citrus by-products

INTERNATIONAL PAPER COMPANY



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IN CANADA: Continental Paper Products, Ltd., Montreal, Ottawa.

When inquiring check CP 7281 on handy form, pgs. 2-3

NEW LITERATURE

vacuum, and non-tilting bottom-discharge mixer. Covers dispersion-type and sigma blade mixers and 3 laboratory mixers.

Issued by Patterson Foundry and Machine Company, Dept. CP, East Liverpool, Ohio. When inquiring specify CP 7282 on handy form, pages 2 and 3.

It's easy to select speed reducer with this guide by your side

As the first pages of 16-page, colorful looseleaf bulletin are flipped, progressive series of full-size photos give the appearance of disassembling compact speed reducer so all parts of the working mechanism can be seen. These units are made in six sizes ranging in capacities to cover a wide range of drives up to 25 hp. Most desired output speeds from 13 to 133 rpm are obtained by using stock Taper-Lock sheaves.

A wealth of tables permits reader to select the proper size reducer for a given application if he knows the hp requirements and speed and size of driven shaft. He also can determine quickly the size of V-belts and sheaves needed by using the tables. Bulletin A-470, issued by Dodge Manufacturing Corporation, Dept. CP, Mishawaka, Ind. When inquiring specify CP 7283 on handy form, pages 2 and 3.

Tabulates specifications for 200 styles of bubble caps, risers

Bubble caps, bubble trays, tube and assemblies are among sheet alloy products shown in a 4-page bulletin. Specifications are listed for 200 standard styles of bubble caps and bubble-cap risers, furnished without die cost.

Cross-sectional diagrams illustrate standard bubble cap and riser designs. Bul. 21, issued by The Pressed Steel Company, Dept. CP, Wilkes-Barre, Pa. When inquiring specify CP 7284 on handy form, pgs. 2-3.

A-C generators provide prime, movable, standby power source

Line of high-speed synchronous generators for standby, movable, and prime power source is described and profusely illustrated in an 8-page, 2-color bulletin. Ratings are from 12½ to 1250 kva, speeds from 514 to 1800 rpm. Tells construction features, mechanical modifications, and performance data.

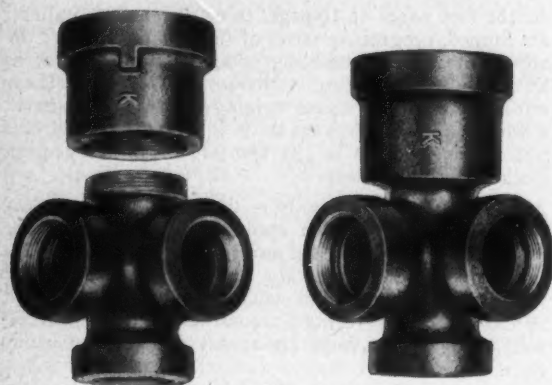
Bulletin, GEA-5415, issued by the General Electric Company, Dept. CP, Schenectady 5, N. Y. When inquiring specify CP 7285 on handy form, pages 2 and 3.

Sectionalize belt conveyors for easy field assembly

An illustrated description of sectional, belt conveyors — reported to be easily assembled in the field — is given in 4-page, 2-color bulletin. Units consist of drive and tail sections, and any desired number of intermediate truss sections to form a conveyor of any length up to belt limitations. Belts are furnished in 18, 24, 30, and 36" widths; intermediate truss sections are 6' 6", 15' 6", 18' 6", and 21' 6" long by 24" deep — also 24' long by 42" deep.

Two types of takeups are available: protected screw-type for conveyors up to 200' long, and vertical gravity-type for longer installations. Bulletin No. 132, issued by Robins Conveyors Division, Hewitt-Robins Inc., Dept. CP, Passaic, N. J. When inquiring specify CP 7286 on handy form, pages 2 and 3.

Originality in fittings



YOU may not need this new Util-TY in your plant, but it would save you considerable money if you were having a garbage disposer or dishwasher installed in your house kitchen. The Util-TY permits an added fixture to be tied into the sink drain without erecting a new vent stack.

We cite the Util-TY as an example of originality in pipe fittings. Since our business consists exclusively of designing and manufacturing fittings, we are always on the alert for new ideas; also to adopt improved methods for making the "K" line continuously better.

"K" Fittings fall into the following general categories:

- Standard and Extra Heavy Screwed Steam Fittings.
- Standard and Extra Heavy Flanged Fittings.
- Standard and Extra Heavy Companion Flanges.
- Standard Sprinkler Fittings.
- Standard Drainage Fittings, Black and Galvanized.
- Standard Bushings, Plugs, Flange Unions.

ASK YOUR DISTRIBUTOR FOR "K" FITTINGS

"K" PRECISION FITTINGS

3,000 SHAPES AND SIZES.

THE KUHN'S BROTHERS CO.

1808 McCALL STREET

DAYTON 1, OHIO

When inquiring check CP 7287 on handy form, pgs. 2-3

Page 80

Automatic Self-cleaning System Removes Solids or Difficult Slimes

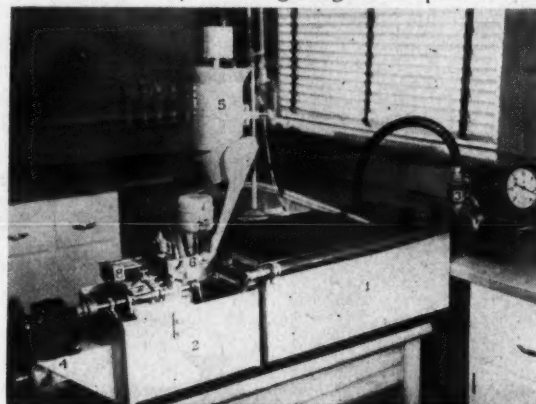
Filter layer removed and replaced as rapidly as it clogs; design facilitates metal recovery

USES: For complete removal of solid impurities in continuous or intermittent operation, as desired.

A self-cleaning, automatic filtering system adaptable to permanent installation in pharmaceutical, fine chemical and electroplating processes. Works efficiently with many types of solutions, including difficult slimes such as those from cyanide plating tanks and those composed of iron and aluminum hydrides. Substances of these types are removed in a condition which facilitates recovery of metal content.

Features: Substances pass through a layer of filter media which is removed and replaced as rapidly as it becomes clogged with impurities.

Design is said to solve special problems such as cake management under widely varying operating conditions. It is also said to prevent a glazing effect upon the filter



Dirty solution passes from process tank (1) to filter tank (2), through filter and back to process tank by means of pump (3) at far right. Spent filter aid is removed from drum at (8) while fresh material is metered from container (5) to makeup tank (6) and passed to drum

coating. Using aqueous solutions, a pilot apparatus in sustained operation has achieved a flow of 5 gpm per sq ft of filter. Application to production-scale equipment is now feasible, manufacturer reports.

Description: As developed in laboratory apparatus, a revolving drum with perforated cylindrical surfaces is coated with filter aid of a diatomaceous or comparable type. Drum is submerged in filter tank which is directly connected by piping to plating tank.

Solution passes through to drum interior with aid of pump-supplied suction, and impurities are trapped in filter cake. Clear filtrate returns to plating tank.

In self-cleaning function, the drum revolves against a blade set at the top to remove spent layer, which is transported up a ramp and dropped to disposal container.

Immediately behind blade is the slurry chamber, in which

filter aid is received from hopper above and diluted with fresh solution from plating tank. Filter aid deposits itself on drum in small segments exposed to the chamber, replacing the spent layer as latter is removed. An electrical control system regulates intermittent rotation of drum and slurry mixture to meet requirements of the filtering operation.

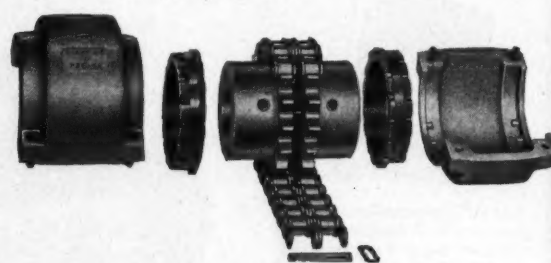
Source: Commonwealth Engineering Company, Dept. CP, Dayton, Ohio . . . or for more information check CP 7288 on handy form, pages 2 and 3.

Splitting coupling casings axially permits rapid installation, removal . . .

made of aluminum alloy; provides lubrication as protection against corrosive atmospheres

Uses: Recommended for use with all flexible couplings because the lubrication so provided materially extends the coupling life. Also should be used with couplings likely to be subjected to misalignment, end play or exposure to corrosive atmospheres.

Features: All standard revolving casings are split axially to permit installation, or removal, in a space no longer than the coupling itself. This simplifies installation and inspection. Lightweight design. Smooth exterior contributes to safe operation.



Disassembled casing with seal at each hub end

Design of the revolving casings and grease retaining seals allows complete flexibility of coupling.

Description: Two types of casing are offered. Type A is shown in the accompanying exploded illustration. This employs a pliable lubrication seal at each hub end. Casing is driven by special interlocking features built into the seals which engage with the coupling chain.

Type C casing employs a lubrication seal on one end only while the other end is sealed by the clamp fit of the casing halves on the finish ground hub of one of the coupling sprockets. These casings are driven through the clamp fit between the casing and one coupling sprocket.

Flexible shaft couplings, for which the casings are designed, may be used on shafts of the same or different

CHEMICAL PROCESSING

diameters. Unavoidable slight angular and parallel misalignment in installation and misalignment that may develop while the equipment is in service, can be accommodated as well as the shaft and float of electric motors.

Coupling consists of only three major parts — two sprockets and a double strand roller chain. They are installed, aligned and connected quickly without use of special tools.

Source: Casings and couplings are made by Diamond Roller Chain Co., Inc., Dept. CP, Indianapolis, Ind. . . . or for more information check CP 7289 on handy form, pages 2 and 3.

Flow of abrasive, clogging materials easily controlled by pinch valves . . .

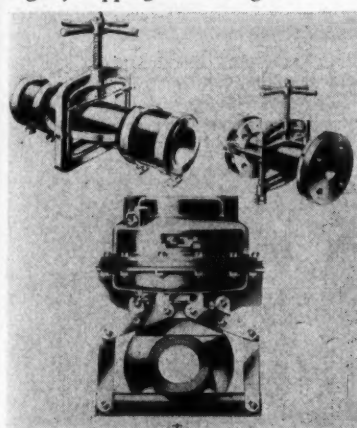
hand-operated slip-on and flanged-end, and diaphragm motor-operated types, also handle corrosives

Uses: Pinch-type valves for controlling the flow of severely abrasive and corrosive materials in the chemical and paper industries, mines, distilleries, etc.

For opening and closing rapidly or at long intervals.

Features: Non-clogging. No internal parts or obstructions. Freedom from water-hammer. Full pipe-capacity; absolute bubble-tightness. Easily installed. Manufacturer reports abrasive life as "11 to 1 over" that of metal valves.

Smooth bore minimizes incrustation, permitting easy cleaning by tapping or flexing with a mallet. Stream-lined



Pinch-type Flex-Valves

contour permits placing in throttling position without undue cavitation. First third of opening gives approximately 90% capacity.

Description:

Hand-operated slip-on type 7100, in sizes 1/2 to 2 1/2", mounts over ends of pipe. Complete package consists of 1 operating mechanism, 1 valve body with slip-on connections, 1 complete set of clamps

ready for installation on piping networks in plants.

Hand-operated flanged-end type 7200, in sizes 1 to 12", consists of 1 operating mechanism, 1 valve body, 2 sets of flange backers, ready to install. Diaphragm motor-operated types 7300 Standard (sizes 1 to 10") and 7400 Extra Power are both air-to-open and air-to-close. For precise control, valves are available with positioner in both air-to-open and air-to-close.

Wall consists of 1/4"-thick rubber tube wrapped with specially impregnated cloth, layers of gum and acid-resistant covering. Flanges are built-on during construction of wrapping. Entire unit is then vulcanized and cured in ovens, blending the wrappers and inner layers into one flexible wall. Thicknesses are calculated to permit flexing without fatigue or breakdown.

Furnished in standard pure gum rubber, Buna "S", Buna "N", neoprene, butyl, odorless tasteless rubber, or compoundings of each.

Source: Flexible Valve Corporation, Dept. CP, Palisades Park, N. J. . . . or for more information check CP 7290 on handy form, pages 2 and 3.

NEW! NEW!

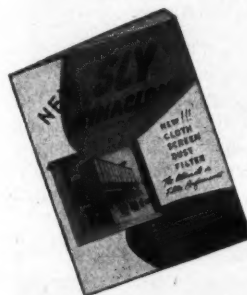
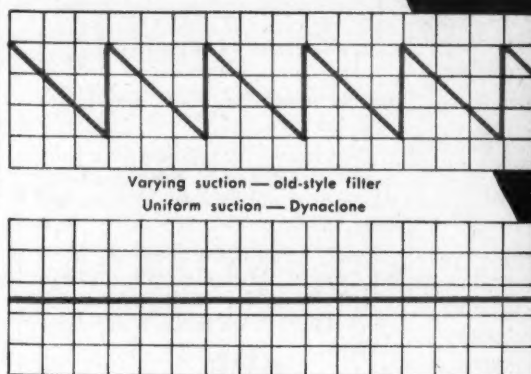
NEW Cloth Screen Dust Filter

SLY

DYNACLONE

offers 5 NEW ADVANTAGES!

1. Eliminates mechanical shaking.
2. Provides uniform suction at dust source.
3. Assures longer bag life . . . 4. minimum maintenance.
5. Keeps itself automatically and continuously clean without additional power or equipment.



Send for descriptive bulletin just out on the new SLY Dynaclone — the ultimate in filter performance.

*Patent Applied for

This revolutionary new dust filter is another Sly first. Extremely simple and thoroughly dependable, it eliminates entirely the gremlin of mechanical shaking and provides uniform suction of air at dust source.

This uniform suction is achieved by a simple device which cleans the filter bags successively by a reverse flow of air—the same suction which draws the dust onto the filter cloth is reversed to blow it off.

Since this reverse air suction operates continually, the new Sly Filter requires no shutdowns for removing dust from the cloth.

No mechanical shaking or flexing device is needed, eliminating all strain and wear on the filter bags.

The simplicity of design and operation and elimination of all auxiliary equipment for periodic cleaning of bags mean a saving of floor space and a very minimum of maintenance.

The result of long experimentation and exhaustive tests, the Sly Dynaclone has thoroughly proved itself. It provides substantial savings over any other type of cloth screen dust collection. Write for complete information.

SLY

PIONEERS and LEADERS in INDUSTRIAL DUST CONTROL

THE W. W. SLY MANUFACTURING CO.

4754 Train Avenue • Cleveland 2, Ohio

NEW YORK • CHICAGO • ST. LOUIS • PHILADELPHIA
DETROIT • MINNEAPOLIS • BIRMINGHAM • CINCINNATI
LOS ANGELES • ROCHESTER • TORONTO

When inquiring check CP 7291 on handy form, pgs. 2-3



SHEET METAL FABRICATION by Kirk & Blum

The fabrication of well-known alloys as well as sheet steel and steel plate (up to $\frac{3}{8}$ "") has been a specialty of Kirk & Blum for more than 42 years. Your specifications are strictly adhered to and you get your products the way you want them . . . when you want them. KIRK & BLUM's wealth of experience in this field is at your service. Send us your prints for estimate. No obligation.

PARTIAL LIST OF SHEET STEEL & STEEL PLATE PRODUCTS REGULARLY MANU- FACTURED FOR PROCESS INDUSTRIES

Hoppers	Hoods
Bins	Ovens
Racks	Dryers
Boxes	Tanks—Steel
Shop Trucks	Tanks—Non-Corrosive
Pallets	Tanks—Rubber or
Platforms	Lead Lined
Cyclone Dust	Pans
Collectors	Stacks
Piping	Breechings
Air Ducts	Guards
Fume Exhaust Systems	
Dust Control Systems	
Air Handling Systems	
Pneumatic Conveying (for Bulk Materials)	
Bag Loading Systems	

Louvre Plates
Eliminator Housings
Eliminator Plates

KIRK AND BLUM

The Kirk & Blum Mfg. Company
2833 Spring Grove Ave.
Cincinnati 25, Ohio

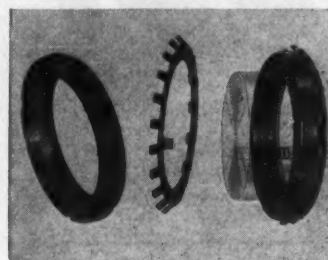
When inquiring check CP 7292, on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Bearings locked in correct position on shafts . . .

varied line of locknuts, lockwashers, does the trick
Uses: Bearing-positioning locknuts and lockwashers for effectively locking various makes of ball and roller bearings in correct position on shafts of $\frac{5}{16}$ to $\frac{7-11}{16}$ " diameter.

Features: Rust-resistant, vibration-



Bearing-positioning locknuts and lockwashers

proof, smooth, burr-free, easy to install and remove.

Description: Precision-machined to ABEC and SAE standards. Made in a wide variety of types and sizes.

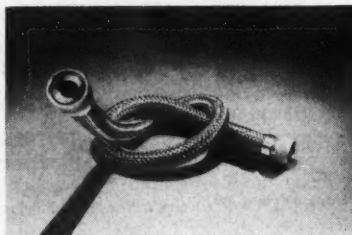
Source: Link-Belt Company, Dept. CP, 307 N. Michigan Ave., Chicago 1, Ill. . . or for more information check CP 7293 on handy form, pages 2 and 3.

Hose conveys corrosives despite temp, pressure, vibration extremes . . .

single or multiple-ply stainless steel construction

Uses: Corrosion-resistant stainless steel hose, in full range of sizes and wall thicknesses, for withstanding high temperatures and pressures, extreme cycles of vibration, flexation and variplane motions.

For conveying corrosive or searching



Flexible stainless steel hose

liquids and gases where motion is required.

Features: Hose with closed corrugation pitch is available for services requiring constant flexing or continuing motion. For infrequent flexing,

For Safety's Sake Use

DAYTON SAFETY LADDERS



Sizes 3 feet to 16 feet in height with standard rubber safety shoes at no extra cost.

Maintenance men everywhere rely on Dayton Safety Ladders for maximum safety and convenience. Daytons are constructed of tested airplane spruce and reinforced with rigid steel supports to give great strength and lightness of weight.

Handrails of steel guard the large roomy platform for added safety. Half of platform can be raised to form an extra step, when needed. These famous ladders can be set up instantly, are easy to carry and fold compactly for storing. Automatic locking feature insures safety while ladder is in use.

Write today for Bulletin No. 45

DAYTON SAFETY LADDER CO.

2339 GILBERT AVE.

CINCINNATI, OHIO

In Canada—Safety Supply Company—Toronto

When inquiring check CP 7294 on handy form, pgs. 2-3

SAFETY EQUIPMENT FOR ALL INDUSTRIES

ACID SIPHON

Designed to draw off Acids from Carboys and Drums into smaller Containers.

Operates on a siphon principle, no pressure being applied to the carboy or drum. Primed by a simple built-in pump. Flow of acid controlled by an easily operated valve.

Built for service and dependability.



"Write for Bulletin AB-40"



Safety Equipment for all Industries

INDUSTRIAL PRODUCTS COMPANY

2834 N. FOURTH STREET • PHILADELPHIA 33, PA.

When inquiring check CP 7295 on handy form, pgs. 2-3

CHEMICAL PROCESSING

SABIN ONE MAN TRUCKS

BARREL TRUCKS
DRUM TRUCKS
KEG TRUCKS
SHOP TRUCKS
BOX TRUCKS
PACKAGE TRUCKS
BALE TRUCKS
SPECIAL TRUCKS

FOR
EVERY
HANDLING
NEED

Write for Bulletin No. 48

The Sabin Truck, for barrels and drums, is a real labor saver. ONE MAN can load truck with containers weighing up to 800 pounds easily, quickly, safely. You run truck up to container, hook on at top, then pull back on handle to pick up load. Exclusive Third Wheel Feature assures better balance and added safety in moving loads. Ask for Bulletin No. 48-A

SABIN BARREL TRUCK



THE SABIN MACHINE CO. 6534 Carnegie Ave.
Cleveland 3, Ohio

When inquiring check CP 7296 on handy form, pgs. 2-3

FAST
ECONOMICAL
SIFTPROOF

BAG CLOSURES

SARANAC D-10"
BAG SEALER



"Makes the Paper Bag a Real Package"

SARANAC Bag Sealing Machines are designed to rapidly and economically close the tops of filled bags.

Paper bags, bags with liners, glassine bags are quickly, securely sealed on the SARANAC. The same machine may be used to close the bottoms of empty bag tubes.

A single pass through the SARANAC Bag Sealer results in a stout, sift-proof, almost hermetically sealed closure. One operator can seal as many as 75 bags per minute. Seals bags up to 10" in width.

Write for free illustrated Bulletin and ask about the SARANAC Proposition.

SARANAC MACHINE COMPANY
BENTON HARBOR MICHIGAN

When inquiring check CP 7297 on handy form, pgs. 2-3

APRIL, 1950

PROCESSING EQUIPMENT

misalignment or slight movement, an open corrugation pitch hose can be obtained.

Description: Fabricated in sizes from 5/16 through 6" ID in 1 or multiple-ply construction. Available with helical or annular corrugations, with or without braid covering, depending on pressure and other factors.

Wall thicknesses from .003 in single-ply to .030" in multiple-ply. Working pressures to 2000 psi. Standard pipe fittings; or fittings to special requirement may be attached by silver brazing or welding.

Source: Chicago Metal Hose Corporation, Dept. CP, 1304 South Third Ave., Maywood, Ill. . . or for more information check CP 7298 on handy form, pages 2 and 3.

Combine Neoprene with special additives as coating for gloves . . .

applied over fabric base, is liquid tight, acid resistant

Uses: For workers requiring liquid-proof gloves that resist oils, greases, caustics and acids.

Features: Coated with Neox, a Neoprene base combined with special additives to produce a flexible, yet tougher material than Neoprene and with far greater resistance to wear.



Fit natural curve of hands

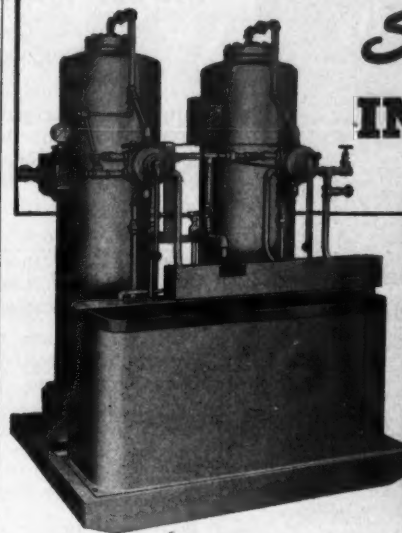
Description: Fingers and thumbs of these "Swaggerette" gloves are molded to the natural curve of the hand for easy, fatigue-eliminating fit. Soft-napped inner linings increase comfort and ease slipping on and off.

Available in three sizes: Small, medium and large, 11" overall gauntlet style.

Source: Neox coated gloves are made by Edmont Mfg. Co., Dept. CP, Coshocton, Ohio . . . or for more information check CP 7299 on handy form, pages 2 and 3.

ion exchanger

Suggestions by
INDUSTRIAL



Demineralization of Water

Deacidification of Solutions

Purification of Organic Solutions

Recovery of Valuable Metals from Solutions

Concentration of Solutions

Substitutions of Anions and Cations in Solutions

A Two-Bed INDUSTRIAL Ion-Exchange Unit. Standard two- and four-bed units available with capacities of 200 to 1000 gph. Special units of any capacity engineered to requirements.

The success stories of ion exchangers are not isolated cases. All through industry in a wide variety of applications they are effecting substantial cuts in costs, more uniform products, and a new ease in process control.

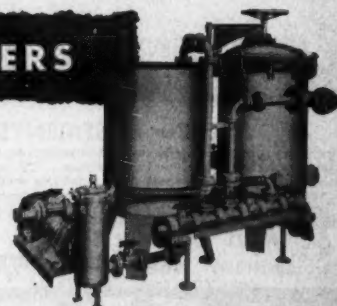
Here are a few suggestions for you to check against your own processing. INDUSTRIAL is glad to give you the benefit of its experience if you will outline your requirements. An estimate of probable savings, production, approximate costs, and the equipment required will enable you to know what the ion-exchange method can do for you.

INDUSTRIAL FILTERS

**For Solution Clarification
Any Solution—Any Quantity**

A Typical INDUSTRIAL Stationary Filter. Standard portable and stationary models available with capacities of 100 to 15,000 gph. Special filtering systems are engineered to meet unusual requirements.

Write for full information and recommendations.



INDUSTRIAL FILTER & PUMP MFG. CO.

1629 West Carroll Avenue
Chicago 12, Illinois

FILTERS PUMPS CORROSION TESTING APPARATUS
Pressure Type Centrifugal Salt Fog Humidity
RUBBER DIVISION WATER
Vulcanized Linings Molded Products DEMINERALIZERS

When inquiring check CP 7300 on handy form, pgs. 2-3

Cut Drying Time to Minutes...Improve Uniformity

Allis-Chalmers
Dielectric
Heaters



YOU CAN END overbaking, burning of thin sections, and case hardening of outer layers in many drying processes with an Allis-Chalmers dielectric heater.

In turn, you get high speed, uniform drying of a product. For example, rayon cakes dried by Allis-Chalmers dielectric heaters have no damp centers, or overheated outside layers. Result—uniform shrinkage, uniform coloring, better cloth.

Get engineering and cost studies from your nearby Allis-Chalmers Sales Office, or write direct.

ALLIS-CHALMERS, 1151A SO. 70 ST.

A-3000

MILWAUKEE, WIS.

ALLIS-CHALMERS



When inquiring check CP 7301 on handy form, pgs. 2-3



**STOPS
LEAKS
Quickly!**

MAKES BASEMENTS DRY!

Leaks in concrete walls can be stopped quickly with FLEXTITE. Actually seals against water pressure. Efficient as a plaster coat for sealing off water and dampness. Converts wet basements into dry useful space. Used in elevator pits, tunnels, dams, tanks, retaining walls. In reconstruction work, broken pillars and beams can be quickly reshaped with FLEXTITE.

**MAIL COUPON for
FREE TRIAL OFFER**

FLEXTITE

FLEXROCK COMPANY

2811-F Filbert St., Philadelphia 4, Pa.

Offices in Principal Cities

Please send me complete FLEXTITE information and details of TRIAL ORDER PLAN—no obligation.

Name _____

Company _____

Address _____

When inquiring check CP 7302 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**Sweep floors magnetically
for thorough removal of
steel parts, scrap . . .**

tube holding permanent magnets is mounted between wheels; easily pushed under machines, benches

Uses: For rapid, thorough pick-up of steel chips, metal parts, similar material, especially from areas not generally accessible without stooping. Device is being used on floors, driveways, in tanks, and elsewhere to remove nails, screws and other parts that present a safety or scrap problem.

Features: Propelled like a carpet sweeper and requires only 2 3/4" clearance (see illustration). Unloading is simple—a neoprene wiper ring pushes adhering parts to non-magnetic areas at either end.

Wherever magnets are applied, steel parts jump to the tube and load automatically over entire 360 degrees of magnetic surface.

Description:

Powerful magnetic tube rotates with wheels as unit is pushed over floor or other area. Handle design facilitates guiding magnet where clearances are very low or otherwise difficult to reach.

Wear-proof inertia brakes prevent roll when unit is not in use. Five sizes are available; Model D-20 shown here, is 26" wide.

Source: Series D rotary floor Magnetools are made by Multifinish Mfg. Co., Dept. CP, Detroit 7, Mich. . . or for more information check CP 7303 on handy form, pages 2 and 3.

**Boiler-draft controlled
regardless of outside
weather . . .**

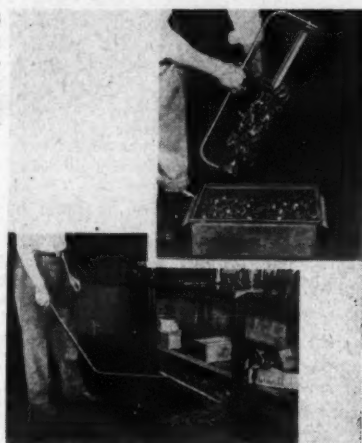
direct motor driven fan unit installs in stack like section of pipe; for 6 to 350 hp boilers

Uses: Direct motor driven fans for difficult stack problems. For boilers from 6 hp (200,000 Btu per hr) to 350 hp (12,000,000 Btu per hr) and operating temperatures up to 650°F.

Features: When properly dampered, this unit permits controlled draft regardless of outside weather conditions. Dampers can be connected to firing controls, providing desired draft at all times. Costly stack construction is often avoided.

Inexpensive to install. Requires no belts or flexible couplings. Fan wheel can be serviced merely by removing Bifurcator unit from ductwork like a section of pipe. The unit can be set at any angle, and requires no change in direction of airstream, no platform or special supports.

Description: Bifurcator unit is a direct motor driven fan with a divided housing. Motor is in an isolated asbestos-lined chamber, around which flue gases are by-



Steel parts picked-up by magnetic sweeper, removed by wiper ring

PROMPT DELIVERY

HERCULES Aero

(RUBBER CUSHIONED)

and

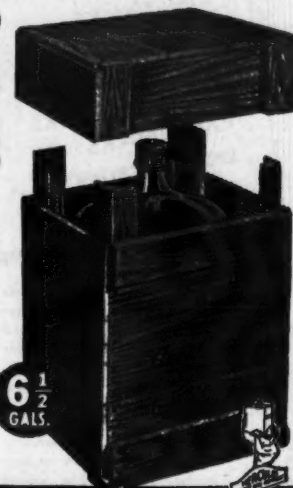
HERCULES

(CORK CUSHIONED)

CARBOY BOXES

Available in

**5 1/3 gallon sizes
to comply with ICC-
IA. Available in 6 1/2
gallon size to comply with specification ICC-ID.**

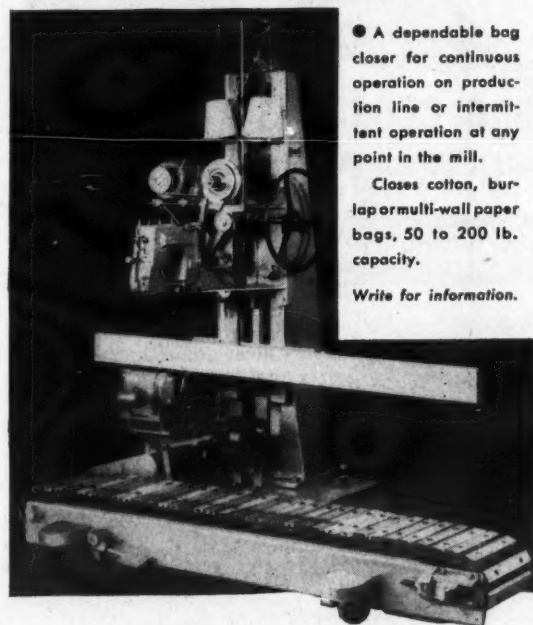


NATIONAL BOX & LUMBER COMPANY

HOME OF HERCULES CARBOY BOXES • NEWARK 5, N. J.

When inquiring check CP 7304 on handy form, pgs. 2-3

FAST, FLEXIBLE, HEAVY DUTY BAGGER CONSOLIDATED Model 105



● A dependable bag closer for continuous operation on production line or intermittent operation at any point in the mill.

Closes cotton, burlap multi-wall paper bags, 50 to 200 lb. capacity.

Write for information.

CONSOLIDATED PACKAGING MACHINERY CORP.
BUFFALO 13, N. Y.

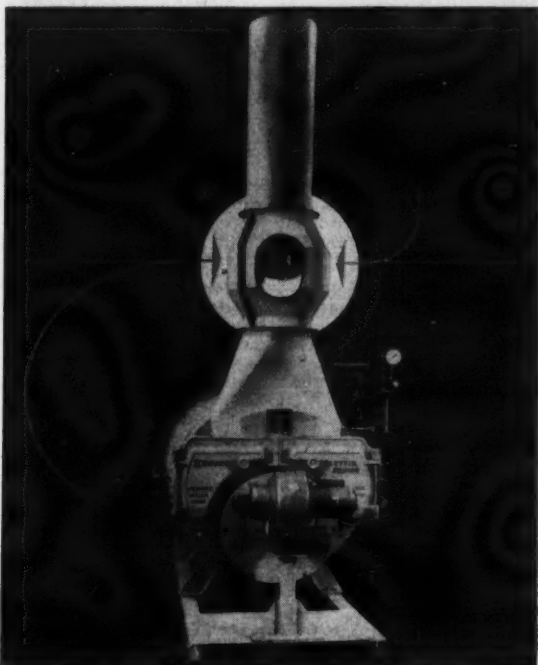
When inquiring check CP 7305 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

passed. Chamber is open to view from two sides. Motor shaft extends to fan in Bifurcator breeching. Entire Bifurcator unit is installed, like a section of pipe, in a vertical stack or horizontal or angular breeching.

Fans range in size from 12 through 27". NEMA Class B motor. Companion flanges on Bifurcator unit facilitate mounting. Housings are designed to support 1/4"-thick



Arrows and white circle indicate induced-draft Bifurcator Fan unit, installed in boiler stack

steel stub stack of same diameter as fan wheel, and up to 30' high when properly braced with guy wires. Motor can be open or totally-enclosed.

Source: American Machine and Metals, Inc., DeBothezat Fans Div., Dept. CP, East Moline, Ill. . . or for more information check CP 7306 on handy form, pages 2 and 3.

Handbook of battery technology includes lead-acid theory

A 4-page section on theory of the lead-acid battery, with captioned line-drawings, is a feature of the revised 2nd edition of a 40-page pocket-size handbook of technical instructions and engineering data on the care of motive-power storage batteries. Sections of the text are devoted to theory, care and operation, maintenance and repairs, parts, and technical data.

Typical of the useful information contained is a table giving ratios of parts water to parts acid required to obtain given specific gravities when mixing by volume, both with 1.835 and 1.400 sp gr acid. Technical data includes 8 charts, 4 of them tabulating battery-charger amp-hr-meter settings to give correct charge, depending on state of discharge; and 4 showing battery capacities in terms of amp hrs, amps, and kw hrs at both 6-hr and 8-hr discharge rates. Eight battery models of 9 to 41 plates per cell are covered.

Issued by Gould Storage Battery Corp., Dept. CP, Trenton 7, N. J. When inquiring specify CP 7307 on handy form, pages 2 and 3.

in ION-EXCHANGE

its RESULTS that count!

Check.

THESE CASE HISTORIES OF DORRCO *d-i* INSTALLATIONS . . .

FOR ANODIZING BATHS



Double installation provides two successive stages - units in operation four years with no resin replacements.

Results: Saving of over 90% on process water costs . . . improved control in anodizing operation. Average overall operating expense (including labor) - 32.1 cents per thousand gallons of de-ionized water produced!

FOR CARBONATED BEVERAGES



A Dorrcoc D-I Unit, four years old, still operates exactly as specified when sold . . . and with original resins.

Results: Taste and "shelf-life" of finished product improved . . . pin-point carbonation attained. Overall operating cost - two-tenths of a cent per case of twelve 28-oz. bottles!

FOR COSMETIC MANUFACTURE



Dorrcoc D-I Unit installed over 3 years ago . . . no resin replacements required.

Results: D-I water cut costs when substituted for distilled water . . . process variable eliminated when substituted for raw water. Total operating expense - 13 cents per thousand gallons of de-ionized water produced!

FOR PHARMACEUTICAL MANUFACTURE



D-I water meets strict operating requirements over a four year period . . . with no resin replacements.

Results: Product quality improved . . . variable of fluctuating quality in water supply eliminated. Average overall operating expense - 42 cents per thousand gallons of de-ionized water produced!



We believe these results speak for themselves. Regardless of industry, if your process requires water of controlled mineral content, a Dorrcoc D-I System will produce it . . . in any amount . . . at a fraction of the cost of distillation. Write for Bulletin #4081 for complete details.



THE DORR COMPANY, ENGINEERS
BARRY PLACE, STAMFORD, CONN.
NEW YORK • ATLANTA • TORONTO
CHICAGO • DENVER • LOS ANGELES
RESEARCH AND TESTING LABORATORIES
WESTPORT, CONN.

SUGAR PROCESSING
PETREE & DORR DIVISION, STAMFORD, CONN.
ASSOCIATES AND REPRESENTATIVES
Dorr Technical Services and Equipment Are Also Available Through Associated Companies and Representatives in the Principal Cities of the World. Names and Addresses on Request.

DORR

RESEARCH — ENGINEERING — EQUIPMENT

When inquiring check CP 7308 on handy form, pgs. 2-3

Here's Equipment Built to Stand Up
Under Your Production Requirements
for **METERED PRESSURE PUMPING**
of Such Chemicals as:

SULPHURIC ACID

NITRIC ACID • LIQUID CHLORINE

HYDROCHLORIC ACID • SLURRIES

CHLORINATED HYDROCARBONS

HYDROGEN PEROXIDE • PROPANE

HYDROFLUORIC ACIDS • OLEUM

CYANIDE COMPOUNDS • STYRENE

SODIUM HYDROXIDE • FREON

- NO STUFFING BOX OR RUNNING SEAL
- HYDRAULICALLY-BALANCED DIAPHRAGM SEAL
- POSITIVE DISPLACEMENT PISTON MEASUREMENT
- FLOW RATE ADJUSTABLE WHILE IN OPERATION
- OIL-BATH LUBRICATION OF ALL MOVING PARTS
- UNITS AVAILABLE FOR MANUAL OR AUTOMATIC CONTROL

Lapp
PULSAFEEDER

PISTON-DIAPHRAGM CHEMICAL PROPORTIONING PUMP

WRITE for Bulletin 227 with complete description and specifications.
LAPP INSULATOR CO., INC., PROCESS EQUIPMENT DIVISION, 104 MAPLE STREET, LEROY, N. Y.

When inquiring check CP 7309 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**Current disconnects
when lighting units
are lowered . . .**

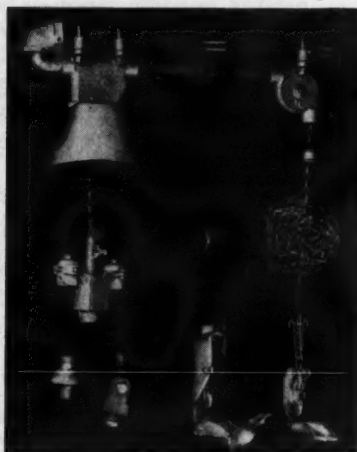
all - weather corrosion - resistant
units hold 120-lb fixtures

Uses: Remotely-controlled, latching-type overhead disconnecting switch, combined with a fixture lowering-and-raising device, for outdoor or high-position lighting installations of all types.

These all-aluminum "Unit Package" hangers support incandescent, fluorescent or mercury-vapor fixtures weighing up to 120 lbs. Loading docks, parking zones and switch-yards are typical applications.

Features: Can be lowered to floor or ground-level for servicing, eliminating need for ladders or scaffolds. Lighting fixture, when lowered, is "dead," and can be repaired, cleaned or serviced quickly, with safety from electrical hazards.

Approximately 50% lighter than malleable iron units in the standard line, they reduce structural-strength require-



"Packaged" aluminum unit for high-position or outdoor lighting

ments for supporting members and increase ease of installation.

For increased resistance to weather and corrosive atmospheres, these all-aluminum hangers have a baked aluminum plastic enamel coating.

Description: Four types of units for various outdoor installations. Each unit package contains a complete disconnecting and lowering hanger, a lighting fixture adapter for either pendant or yoke-type fixtures, a slip-fit elbow, bracket-end, U-bolts, filler blocks.

Also a fixed-position corner pulley, a specified length of galvanized chain, and (optional) an open-type lock box with spring-loaded terminal link or a fully-enclosed pulley-equipped lock

New! for your laboratory
THIS "10 FEATURE SINK"
at NO EXTRA COST

Kentherm
A GUARANTEED
PRODUCT OF
KEWAUNEE MFG. CO.
Available Now
In Stock at Adrian, Mich.



- Molded in one piece
- No joints or seams
- Interior corners are radiused
- Attractive uniform ebony black surface
- Sloping bottom to give complete drainage
- Guaranteed to withstand maximum thermal shock in normal laboratory use
- Extremely resistant to all chemical attack other than hydrofluoric acid
- Extremely resistant to attack by bases and salts
- Highly resistant to attack by acids at room temperatures
- Easily and thoroughly cleaned with detergents or if necessary by solvents

Write for Special Kentherm Sink Folder illustrating and describing
15 models of this new "10 Feature Sink" for all Laboratory uses

Kewaunee Mfg. Co.

C. G. Campbell, President

Manufacturers of Wood and Metal Laboratory Equipment

Representatives and
Sales Offices
in Principal Cities

5011 SOUTH CENTER STREET • ADRIAN, MICHIGAN

When inquiring check CP 7310 on handy form, pgs. 2-3

**CONSTANT FLOW-RATE
ASSURED**

WITH THE

ConoPurge

DIFFERENTIAL
PRESSURE
REGULATOR



A CONSTANT RATE OF FLOW, regardless of variations in upstream or downstream pressure! That's the job that ConoPurge does when used with air or liquid purging systems or with bubbler type pressure gauges in liquid level applications.

The CONOPURGE system consists of sight feed bubbler or indicating rotameter with adjustable needle valve and a CONO DIFFERENTIAL PRESSURE REGULATOR. Either gas or water can be used as a purging medium.

Available in 1/4" NPT size only, for inlet pressures to 150 psi, and with 1 1/2 psi and 3 psi fixed differentials.

WRITE TODAY FOR BULLETIN H-11

CONOFLOW CORPORATION
2100 Arch St., Phila. 3, Pa.

Cono Controls

When inquiring check CP 7311 on handy form, pgs. 2-3

CHEMICAL PROCESSING

SAVE TIME . . . Nicholson Steam Traps Require

NO CHANGE of Valve

or Seat

0 to 225 Lbs.



Nicholson steam traps save the time and trouble of adjusting valves for varying pressures. This feature substantially speeds maintenance and production. Made of hardened stainless steel, the valve is extra large, resulting in from 2 to 6 times average drainage capacity. Both valve and seat are renewable. The fast action of Nicholson traps prevents waterlogging. Installations have increased production of cooking kettles, for example, as much as 30%. Widely specified for preventing damage to thin gauges. Eliminate "cold blow" in unit heaters. 5 types for every application. Size 1/4" to 2"; press. to 225 lbs.

BULLETIN 1047 or see Sweet's

W. H. NICHOLSON & CO. Wilkes-Barre, Pa.
181 Oregon St.

Valves • Traps • Steam Specialties

When inquiring check CP 7312 on handy form, pgs. 2-3

Murphy PARAGON "C"

A SMALL COMPRESSED AIR SEPARATOR

GUARANTEED

TO REMOVE THE LAST TRACE OF MOISTURE,
OIL, AND DIRT FROM COMPRESSED AIR

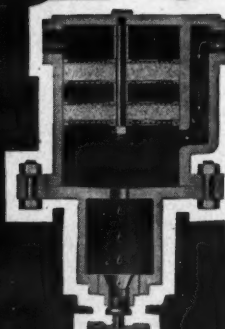
AT POINT OF USE

Installed just ahead of point of delivery, PARAGON "C" removes the last trace of pipe line condensation, scale, and grit, and delivers air, clean and dry, to immediate use.

Economical to buy and maintain, simple to install.

FREE

Our Bulletin P-A gives details of operation, construction, and prices. Ask for it today!



AFTERCOOLERS • SEPARATORS • STRAINERS • TRAPS
SPRAY GUNS • PISTOL SPRAYERS

JAS. A. MURPHY & CO.

501 NORTH FIFTH STREET, HAMILTON, OHIO

Moisture Elimination Up To 3000 Pounds Per Square Inch

PROCESSING EQUIPMENT

box for use with conduit-enclosed vertical chain runs. Enclosed lock box is weather and tamper-proof.

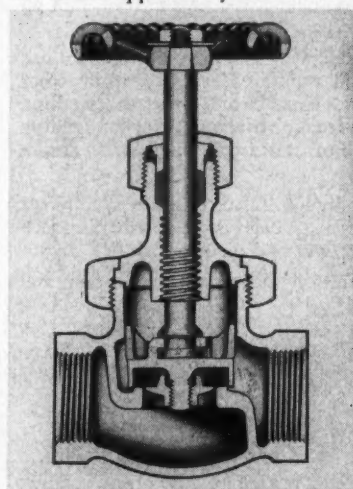
Load-carrying members are high-strength heat-treated aluminum alloy. Entire operation of unlatching, disconnecting and lowering, raising, repositioning, reconnecting and latching is manual, involving only a regulated pull and release on chain or cable. Accurate repositioning assured by small fin on stem of lower assembly which fits into slotted guide-tube on stationary upper member.

Source: Thompson Electric Company, Dept. CP, 1101-88 Power Ave., Cleveland 14, Ohio . . . or for more information check CP 7314 on handy form, pages 2 and 3.

**Globe, angle, check valves
handle LP-gas up to
250 psi . . .**

also water, compressed air, gasoline, light oils

Uses: Globe, angle and check valves for liquefied petroleum gas service. Also for hot or cold water, compressed air, gasoline, light oils, etc. Tested and approved by Underwriters'



Composition disc, cemented into disc holder, assures tight seating

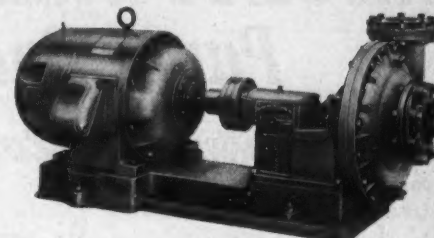
Laboratories, Inc., for use on LP-gas up to max 250 psi.

Features: A Crane No. 6 composition disc is cemented into the disc holder to assure tight seating. Tightness at large stuffing box is assured by one-piece molded asbestos packing.

Description: All 3 types have screwed ends and are available in 1/4 through 2" sizes.

Source: Crane Co., Dept. CP, 836 S. Michigan Ave., Chicago 5, Ill. . . . or for more information check CP 7315 on handy form, pages 2 and 3.

Two VERY useful pumps



OLIVITE...

for handling a great variety
of acids and other chemicals

ODS..

a linkage-free diaphragm pump for handling slurries as well as many chemical solutions



The outstanding feature of the OLIVITE ACID HANDLING PUMP is its durability. Every inch of contact surface is either a special high resistance rubber (Olivite), molded in place with an enduring grip to the metal parts or a high tensile plastic, (Olivex). The shaft and bearings are fully protected. Sizes: 1 1/4, 2 and 4 inch. Fully described in Bulletin 308-R.

The ODS Pump, short name for the OLIVER DIAPHRAGM SLURRY PUMP, offers the mechanical advantage of simplicity. No mechanical linkage to the diaphragm. No stuffing box, and it's rubber protected or of all-metal construction. Movement is caused by cyclic pressure of air or gas, by vacuum, or by a combination of both. Heads up to 200 feet are practicable; charging is by gravity or against lifts up to 15 feet! Several sizes from 1 to 3 inches.

Once tried, these pumps sell themselves for complete pumping requirement. Put either or both in your plant and test them competitively.

OLIVER UNITED FILTERS INC.



New York—
33 West 42nd Street

San Francisco—
260 Calif. St.

Chicago—
221 N. La Salle Street

Oakland—
2900 Glascock Street

Export Sales Office—New York

Cable—OLIUNIFILT

Factories: Hazleton, Pa. • Oakland, Calif.

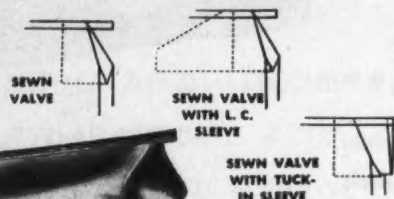
When inquiring check CP 7313 on handy form, pgs. 2-3

When inquiring check CP 7316 on handy form, pgs. 2-3

Your Style

MULTIWALL Paper Bags

MADE BY *Fulton*



Whatever your Multiwall requirements may be — pasted or sewn bottom, open mouth or valve — Fulton makes them in every size.

The Multiwalls we are turning out are winning compliments on every hand for their clean cut appearance and uniform high quality of

workmanship. Try Fulton on your next order for Multiwalls — set your own standards for quality — see for yourself that Fulton Multiwalls measure up.

FULTON IS GEARED to give you complete bag service in both Textile and Multiwall bags. Call on us.



Fulton BAG & COTTON MILLS

Atlanta • St. Louis • Dallas • Kansas City (Kans.) • Denver
Minneapolis • New Orleans • Los Angeles • New York

When inquiring check CP 7317 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Non-corrosive 3-piece cylinder and shaft seal eliminates blow-by . . .

wide range of applications includes use in various types of hydraulic hoists

Uses: Corrosion-resistant 3-piece cylinder and shaft seal for use in nearly all types of machinery, including wide application in hydraulic hoists.

Features: Can be made of non-corrosive materials and practically any metal alloy to avoid or retard rust, tarnish and other forms of corrosion in various hydraulic solutions. Mechanical principles eliminate blow-by, the leakage of air, gas or liquid past a piston ring.

Description: Consists of one inner ring with two extremely close-fitting outer rings, the step of the inner ring being staggered so that, even after much wear, blow-by is usually 100% eliminated.

Manufacturer specializes in wide variety of piston rings, seals, gaskets, etc., for refrigeration and pumping machinery, hydraulic, steam and other applications, in sizes ranging up to 36" diameter.

Source: The Auto-Diesel Piston Ring Co., Dept. CP, 3145 Superior Ave., Cleveland 14, Ohio . . . or for more information check CP 7318 on handy form, pages 2 and 3.

No product contamination when dry-lubricated pump provides suction . . .

units useful in filling operations, suction feed, pick-up service, priming vacuum pumps

Uses: Originally designed for specific applications involving packaging and printing machinery, many other uses are equally practical. These include automatic handling on conveyor systems, vacuum veneering, vacuum holding chucks, vacuum priming of centrifugal pumps and vacuum filtration.

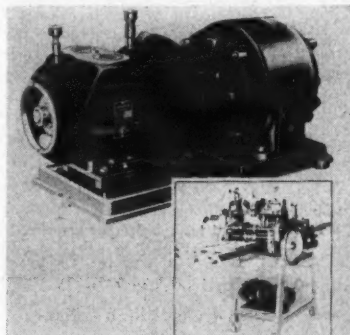
Features: Pumps are dry-lubricated, completely eliminating discharge oil vapors. This is important in such operations as handling paper and pharmaceuticals.

Displacement blades furnish their own lubrication and take up their own wear. Blades are designed to be consumed after a reasonable length of time in continuous, heavy-duty service. Replacement costs compare favorably with cost of oil and service time required for oil-lubricated pumps.

Description:

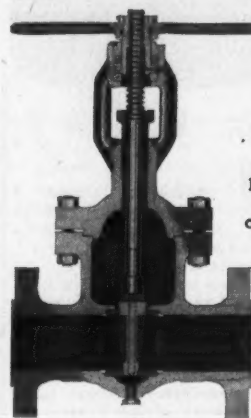
Class 23 pumps are designed for operation at 1750 rpm so they may be direct-connected to electric motors of this standard speed. However, they are not restricted to this speed. Capacities range from 5 to 20 cfm for single units; larger capacities for group drive.

Pumps are fan-cooled, providing positive cooling for continuous duty over a wide range of service conditions. Outer casing design provides an enclosure for control of flow of cooling air, as well as furnishing a guard for fan



Air pump — insert shows actual installation

Edward CAST STEEL GATE VALVES



Exclusive test method, requiring both seating faces of Edward cast steel gate valves to seal simultaneously, assures drop tight closure. Guide ribs, welded to body after seat rings and wedges are located, provide perfect alignment of working parts and reduce wear. One piece bonnet construction for easy operation, minimized maintenance. Simple yoke construction with ball bearing operation in large and medium sizes. Flanged or welding ends.

Available in sizes from 2½ in. to 12 in. inclusive for 300 to 1500 lb service. For complete information write for

free **CATALOG 12-E**



When inquiring check CP 7319 on handy form, pgs. 2-3

"Best Answer to our d-c power-conversion requirements"



"THE G-E RECTIFIER, installed in our plant in 1948, has required no major maintenance. There are no rotating parts to clean . . . no bearings or brushes to check," says John W. Lenihan, Chief Electrical Engineer, Farrel-Birmingham, Incorporated.

Other users report savings up to 33% — in d-c power costs.

Find out today how G-E power-rectifiers can help cut your d-c power costs. Write your nearest G-E Office, Apparatus Department, General Electric, Schenectady, N.Y.

This 200-kw G-E mercury-arc rectifier at the Farrel-Birmingham Co. converts 440-volt a-c power to 250-volt d-c power.

GENERAL ELECTRIC

When inquiring check CP 7320 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

blades. Pumps are available with double extended shaft for group installations driven by a single power source.

Source: Class 23 pumps are built by The Kraissl Co., Dept. CP, Hackensack, N. J. . . . or for more information check CP 7321 on handy form, pages 2 and 3.

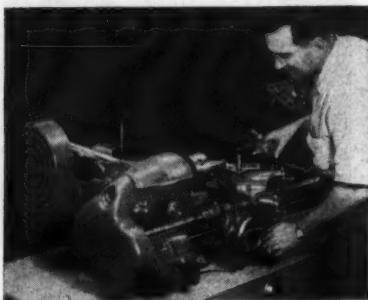
High-quality 10" gear lathe includes automatic safety interlock . . .

prevents engaging half-nuts accidentally when operating power-turning or facing feeds

Uses: Quick Change 10" gear lathe, in 4 bed lengths.

Features: All gears are machine cut, fully enclosed by hinged guards. Replaceable bronze sleeve bearings for headstock spindle help prevent chatter-marks on work due to vibration. Journal bearing surfaces superfinished to 5 micro-inch smoothness (.000005").

Automatic safety interlock prevents engaging half-nuts accidentally when feeds are in operation.



Lathe with 3-1/2' bed and 12-speed horizontal drive

Description:

Rigidly-constructed bed is special gray iron with added 30% steel-content. Three V-ways and 1 flat way are hand-scraped entire length to assure precision alignment of headstock is hand-and carriage. Backgeared headstock is hand-

scraped to bed for spindle precision alignment.

Wrenchless bull gear lock facilitates shifting of back gears. Improved spring latch feed reverse lever is at left end of headstock. Ball thrust bearing and take-up nut eliminate spindle end-play. Spindle bore is 27/32", max collet capacity 5/8". For drilling, a micrometer collar on tailstock feed screw indicates spindle movement in thousandths of an inch. Center is hardened and self-ejecting. Felt wipers on both ends of tailstock base clean and oil bed ways.

Gear box provides 48 thread-cutting feeds, power longitudinal feeds or power cross-feeds. Carriage has long (9-7/16") bearings on V-ways of lathe bed, affording solid support for cutting tool. Saddle V-ways are hand-scraped to match V-ways of lathe bed, and fitted with felt wipers to clean and oil bed. Carriage lock for facing operations is on front wing of saddle.

Compound rest is graduated to 180°, swivels to any angle, and has improved locking device. Compound rest screw and cross-feed screw have micrometer collars graduated to read in thousandths of an inch.

Two types of horizontal drives are available: a 12-speed (48 to 1435 rpm) drive using flat leather belt to headstock, and a 16-speed (52 to 1365 rpm) drive with V-belt to headstock. Bed lengths are 3, 3-1/2, 4, 4-1/2'.

Optional tools, attachments and accessories include taper attachment, handlelever and handwheel collet attachments, collets, milling attachment, etc.

Source: South Bend Lathe Works, Dept. CP, South Bend 22, Ind. . . . or for more information check CP 7322 on handy form, pages 2 and 3.

PROCESSING MACHINERY BULLETIN

Reporting News and Machine Design Developments

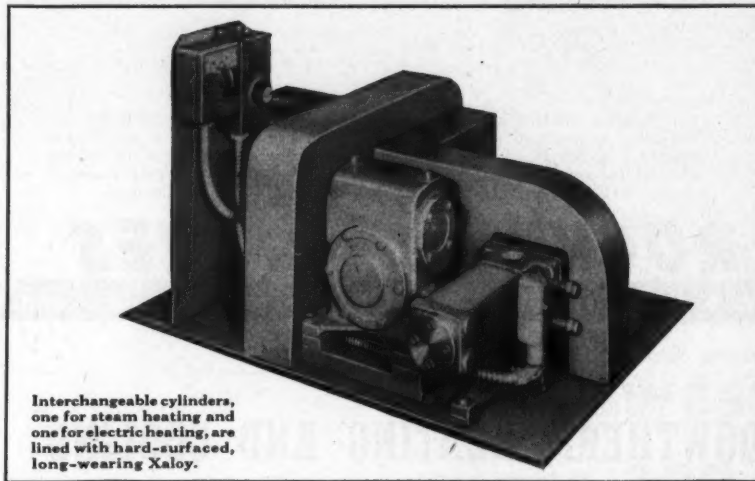
IN BUSINESS TO



REDUCE YOUR COSTS

Small, Compact Bench Model Extruder Ideal for Lab. Work

NRM's 1" Bench Model extruder is small, compact and versatile. Especially suited for laboratory work or small capacity regular production, the Bench Model has a nominal capacity of 6-10 lbs. per hour. It is ideally suited for laboratory operations where runs are small and where it is not practical to handle large volumes of stock in order to secure test runs, quality checks, etc.



Interchangeable cylinders, one for steam heating and one for electric heating, are lined with hard-surfaced, long-wearing Xaloy.

The 1" Bench Model is just 36" long, readily adaptable for "table-top" operations. This compact extruder comes complete with a 3/4 hp. AC motor, a worm gear reducer and interchangeable spur gears to give a wide range of screw speeds and a vari-pitch sheave for fine speed adjustment.

The 1" extruder is especially suitable for laboratory work such as checking extruding characteristics on many types of compounds through various die shapes. (The NRM Bench Model has an accessory combination tubing die and wire covering crosshead.)

ONLY NRM equipment includes sizes ranging from the 1" Bench Model to the huge 12" extruders for special applications.

HI-TEMP LABORATORY MILL POPULAR FOR SYNTHETICS

The NRM High Temperature Laboratory Mill meets the need of plastics work because it can be operated continuously at elevated temperatures. This mill, the Model 42, has large capacity water-cooled bearings. Heat is carried off quickly and efficiently.

Model 42 has strong, precise forged steel rolls, positively located knee-type safety trips and rugged, heavy-duty construction . . . built to take it and give precision results . . . day in and day out.

The Model 42 is but one of NRM's standard laboratory mill designs. If your process requires the mechanics of a lab. mill, write us with your problem. Our wide experience can help you!

NEW ATTRITOR DEVELOPED BY LATEX PROCESSING PIONEERS

Szegvari Attritor Reduces Costs; Has Revolutionized Grinding Processes

The Szegvari Attritor was developed by pioneers in latex processing. This new fine grinding machine makes conventional equipment obsolete—both by production and mechanical operation standards. Unlike conventional grinders, the Attritor has a stationary grinding tank instead of bulky rotating cylinders. Grinding elements and charge are intimately mixed together and exposed to controlled agitation by an especially designed agitator.

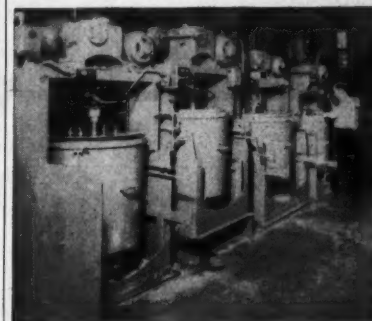


Photo: Courtesy American Anode, Inc.

Szegvari Attritors are built by NRM for the Union Process Co., Akron, Ohio—Specialists in grinding equipment. This battery of four Attritors has been in operation over a period of years grinding almost all ingredients used in rubber processing—including vulcanizing agents, color pigments, etc.

The Szegvari Attritor is small, but output is large. An Attritor requiring floor space of only 55" x 77" can produce as much as 20 times faster, with finer size, than conventional grinders. No elaborate mountings or foundations are necessary.

Greater safety in grinding hazardous material is another Attritor "plus". Reason: The volume of active grind in the Attritor is small and there is no mechanical action in the air space above the grind. Also, a jacketed tank gives accurate temperature control. Rapid charging and discharging of the Attritor is achieved by a built-in pumping system.

NATIONAL RUBBER MACHINERY CO.

General Offices & Engineering Laboratories
Akron 8, Ohio

PLANTS at Akron and Columbiana, Ohio and Clifton, N. J.
AGENTS East: National Rubber Machinery Co., Clifton, N. J.
West: S. M. Klipp, Box 441, Pasadena 18, Calif.
EUROPE Rubber Machinery: GILLESPIE & COMPANY
96 Wall Street, New York 5, N. Y.

*Creative
Engineering*

When inquiring check CP 7323 on handy form, pgs. 2-3

YOU MAY NEED VALVES LIKE THESE ON YOUR PROCESSING LINES OR EQUIPMENT



Kwikleen Slide Valve for paper pulp, thick or heavy chemicals, granular solids, dust, scale or gases containing solids.

Left — Monel metal double disc slide valve — 36" pipe size — for coke oven by-products gas line carrying some sulphuric acid and ammonium sulphate.



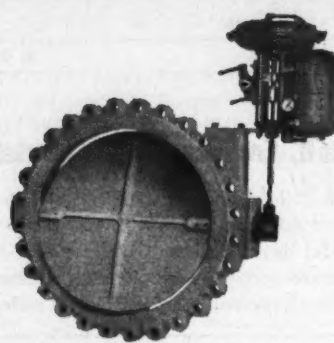
Butterfly Valve — 42" size — with automatic motor control of large volumes of air.

For positive control and quick shut-off in pipe lines or equipment — manually or automatically — without undue pressure drop or turbulence, there's a Rockwell slide valve or butterfly valve of any metal or rubber covered for any fluid. Sizes — 1" to 84" and pressures to 25 p.s.i. standard design, 125 p.s.i. special. Tell us your problem. Write for Catalog.

ROCKWELL VALVES

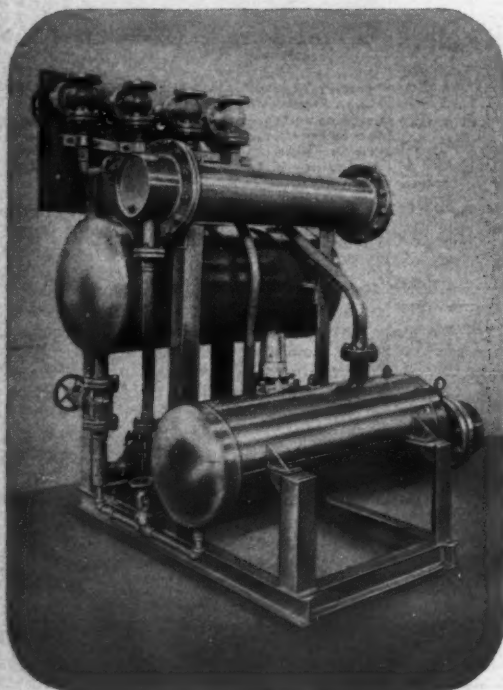
W. S. ROCKWELL CO. • 220 Eliot St., Fairfield, Conn.

When inquiring check CP 7324 on handy form, pgs. 2-3



Wafer type Butterfly Valve — 30" pipe size — with pneumatic diaphragm motor for control of gases at 50 p.s.i.

SELF-CONTAINED DOWTHERM HEATING AND COOLING SYSTEMS FOR THE PROCESS INDUSTRIES



Save time—save installation difficulties—get immediate operation and use. A Blaw-Knox compact, self-contained Dowtherm heating and cooling unit comes to you in one package ready to connect to water and power supplies without further assembling. Installation is quick—simple—inexpensive.

Blaw-Knox standard pre-engineered and pre-proved equipment for the Process Industries includes a long line of major devices. Learn about the others. See Blaw-Knox Bulletin No. 2307.

PROCESS EQUIPMENT DEPARTMENT BLAW-KNOX

DIVISION OF BLAW-KNOX COMPANY
2090 FARMERS BANK BLDG., PITTSBURGH 22, PA.
Other Offices in Principal Cities

When inquiring check CP 7325 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

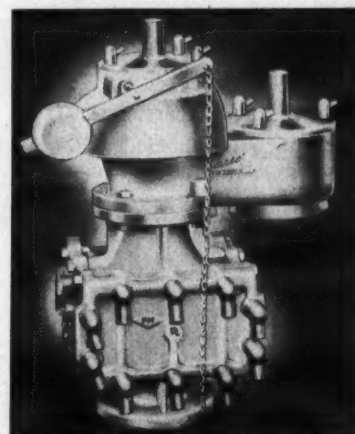
Greater flow from vent valve than from open nipple of equal size . . .

inflammable liquid storage vented at low cost per thousand cu ft venting capacity

Uses: Vent valves and units for venting inflammable liquid storage. Also furnished with flame arrestor listed by Underwriters' Laboratories for use on oil storage tanks, approved by Associated Factories Mutuals' Laboratories for use on chemical storage, and by US Treasury Department for alcohol storage.

Features: Tests by manufacturer, certified by Los Angeles Testing Laboratory, are said to show that the No. 2000

vent valve portion of the No. 5800 vent unit flows more than an open nipple of of equal size — more, in fact, than the open nipple could theoretically flow alone. Design incorporates venturi inlet, hyperbolic pallets, center and side pallet guiding, regrindable and renewable seats, other features. High over-all cost economy per cu ft of tank venting.



High flow-capacity vent unit, including vent valve and flame arrestor

Description: No. 5800 vent unit is aluminum, but can be furnished in special materials for most corrosion problems. Sizes range from 2 to 12". With or without flame snuffer. Wide range of pressure and vacuum settings.

With valve mounted on nipple, the valve's throat diam. permits flow from nipple outlet to expand at such an angle that nipple acts as venturi throat and valve acts as diffuser. Venturi inlet, throat diam. and diffuser angle are so designed as to obtain max. efficiency whether valve is mounted on a nipple, a Varc No. 120 Full Flow Nozzle or Varc No. 50 Flame Arrestor.

Source: The Vapor Recovery Systems Co., Dept. CP, Compton, Calif. . . or for more information check CP 7326 on handy form, pages 2 and 3.

Liquids used regularly in small amounts expelled quickly, accurately . . .

two pipettes dispense up to 0.7 and 2 ml respectively

Uses: Two pipettes, as follows: 1) plunger-operated unit for dispensing any volume up to 2.0 ml, and 2) unit equipped with sliding sleeve and setscrew arrangement for expelling any pre-set volume up to 0.7 ml.

Features: An adept person can manipulate the plunger-operated Automatic Pipette 20 to 30 times per minute, once the volume selector has been set.

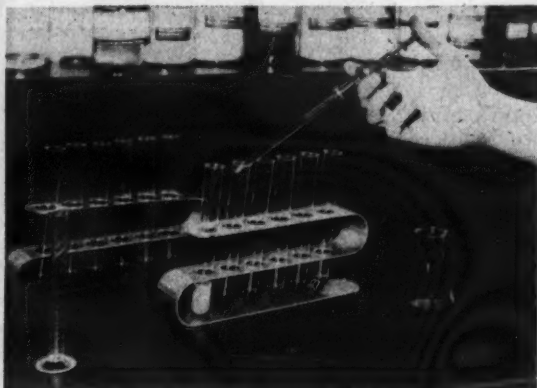
Accuracy of the other unit, the Micropipette, is said to be within plus or minus 0.001%, based on use with distilled water.

Description: Automatic Pipette has 4 slots and a vernier control whereby stroke of the plunger is set to deliver

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

exact volume. Plunger operates by means of a rubber bulb, and its stroke (and volume) is uniform each operation. Micropette always contains an additional amount of fluid



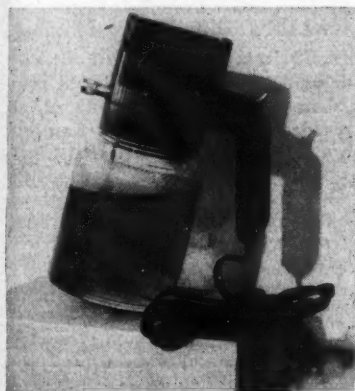
Adept operator can use Automatic Pipette 20 to 30 times per minute

after expulsion. Only the desired amount is expelled, eliminating drainage errors.

Source: Fisher Scientific Company, Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. . . or for more information check CP 7327 on handy form, pages 2 and 3.

Spray disinfectants, paints with chemically resistant electric hand unit . . .

fingertip control of wide range of spray patterns; weighs only 2 lbs; operates on 110-115 VAC



Electric sprayer has non-corrosive parts

Uses: For applying and dispensing insecticides, disinfectants, deodorants, paints and varnishes.

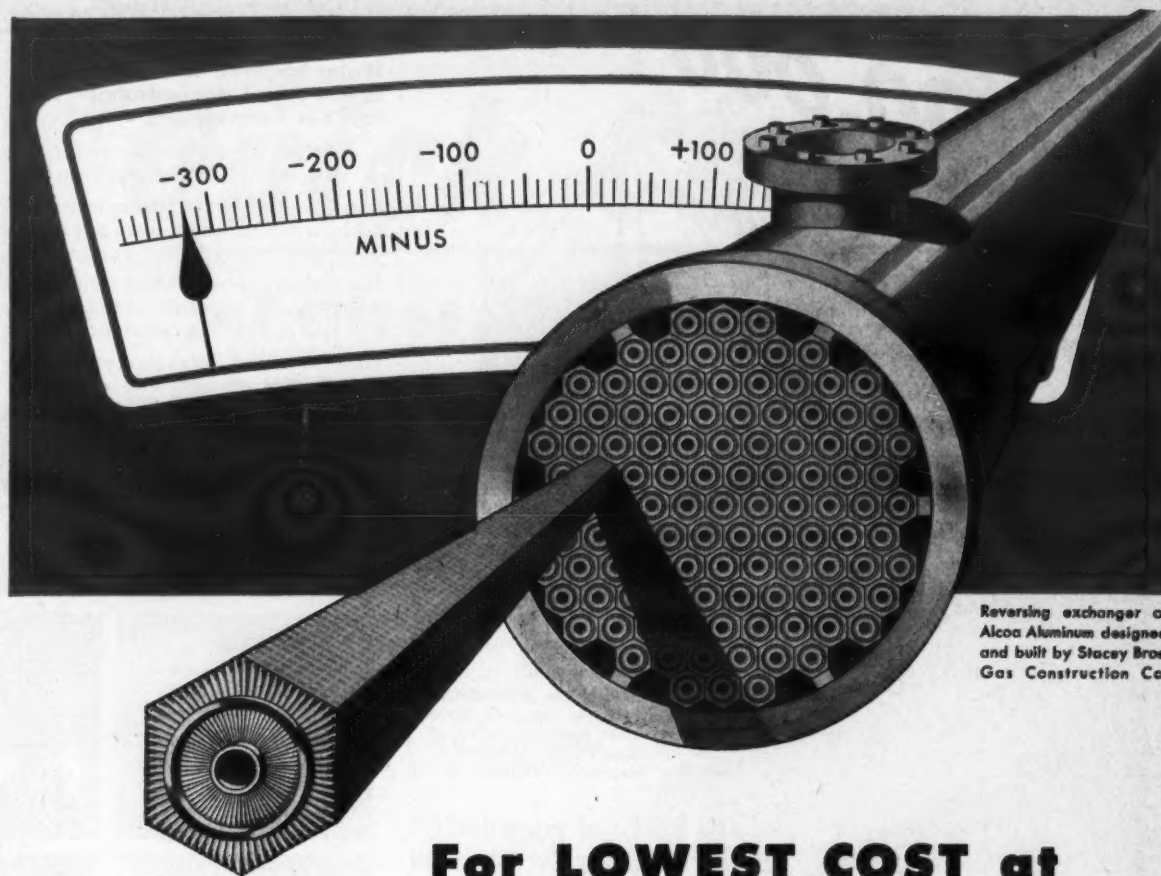
Features: Made of non-corrosive materials. Nozzle is of precision machined brass barstock. Fingertip control adjusts nozzle to produce spray pattern for fine, coarse or straight stream spraying. However, complete

sprayer units include a series of nozzles providing a full range of particle size sprays from coarse to very fine.

Description: Housing is molded case of red thermosetting phenolic, chemically resistant. Vibrator motor: standard silicon iron laminated transformer, 3/8" center post, wound with full face coil, .010 copper wire. Operates on 110-115 volt AC. Bottom ball check is stainless steel.

Dimensions: 8" high, 5" deep, and 4-3/4" wide. Net weight, complete, 2 lbs.

Source: "Handi-Sprayer" is made by James Varley & Sons, Inc., Dept. CP, 1200 Switzer Ave., St. Louis 15, Mo. . . or for more information check CP 7328 on handy form, pages 2 and 3.



Reversing exchanger of Alcoa Aluminum designed and built by Stacey Bros. Gas Construction Co.

For LOWEST COST at minus 320° F

Take your choice of metals suitable for sub-zero process equipment . . . copper, nickel, stainless, aluminum. All stay strong as temperatures drop. All are fabricated by standard tools and methods.

But here the similarity ends. Alcoa

Aluminum costs less . . . less to buy . . . less to design . . . less to fabricate.

Take advantage of Alcoa's test results, fabrication help and service records. Call your local Alcoa sales office, or write ALUMINUM COMPANY OF AMERICA, 1475D Gulf Bldg., Pittsburgh 19, Pa.

ALCOA ALUMINUM

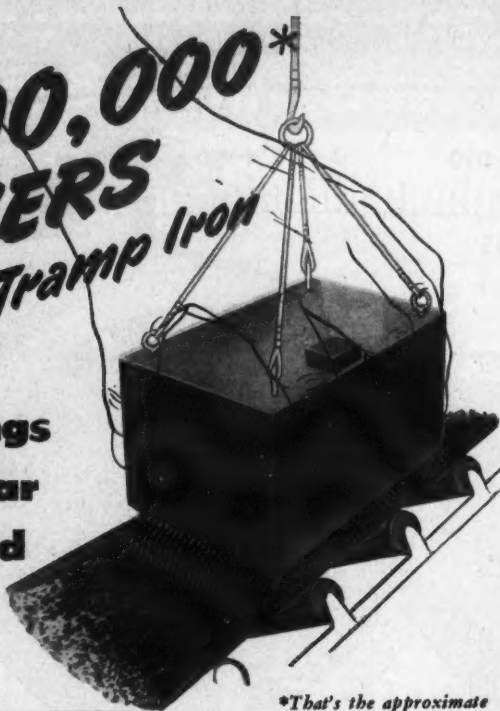


INGOT • SHEET & PLATE • SHAPE, ROLLED & EXTRUDED • WIRE • ROD • BAR • TUBING • PIPE • SAND, DIE & PERMANENT-MOLD CASTINGS • FROGGINES • IMPACT EXTRUSIONS • ELECTRICAL CONDUCTORS • SCREW MACHINE PRODUCTS • FABRICATED PRODUCTS • FASTENERS • FOIL • ALUMINUM PIGMENTS • MAGNESIUM PRODUCTS

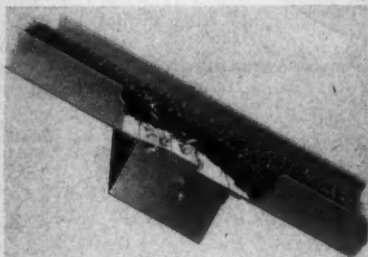
When inquiring check CP 7329 on handy form, pgs. 2-3

8,000,000*
FINGERS
Remove Tramp Iron

**It's the Dings
Rectangular
Suspended
Magnet**



**That's the approximate number of lines of force emanating from the surface of a 48" Heavy-Duty Dings Rectangular Suspended Magnet.*



The Dings Rectangular Spout Magnet is for installation in chutes to remove iron from dry materials or liquids. As material flows over the magnet, iron is attracted and held securely against the downflow of material.



Dings Rectangular Magnet installed above chute.

THAT'S a lot of protection for your crushers, pulverizers and other expensive machinery—enough protection to allow heavier loads (up to 15 inches deep) at higher belt speeds—enough protection for the *toughest* tramp iron removal jobs—the kind of protection only a Dings Rectangular Magnet can give you.

The operation can be made completely automatic with the Self-Cleaning Rectangular Magnet which incorporates a cross belt to carry the iron off to the side. *Complete removal of damaging tramp iron will save you money.* Ask for CATALOG 301-A.

Dings
"HIGH INTENSITY"
Reg. U.S. Pat. Office

**DINGS MAGNETIC
SEPARATOR COMPANY**
4731 West Electric Avenue
MILWAUKEE 14, WISCONSIN

When inquiring check CP 7330 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

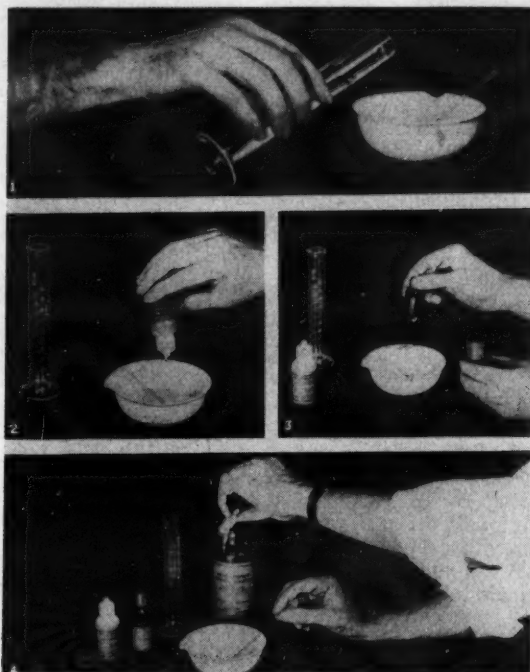
Water hardness tests, accurate to less than 1 ppm calcium, made in 1 minute . . .

simple, direct titrations with distinct color change determine total hardness, calcium hardness

Uses: For fast, accurate measurement of total water hardness and hardness caused by calcium alone.

Features: Answer, correct to less than 1 ppm calcium, obtained in approximately 1 minute. Interferences, though seldom found, are easily eliminated. No complicated heating, waiting, filtering or estimating.

Both the Hagan Total Hardness Test and Hagan Calcium Test have proved uniformly accurate when applied to many



1) Measured sample is poured into porcelain dish; 2) Buffer solution is added and sample well-mixed; 3) Indicator is added and well stirred, turning water red; 4) Titration turns the color from red to bluish at endpoint

samples of raw, feed and softened water, maker reports, and far superior to time-consuming "soap shaking" method.

Description: To determine total water hardness, a clear sample of water is measured into a porcelain dish. A small amount of buffer solution is stirred in to bring sample to suitable pH value. Indicating solution is then added and stirred. Sample at this stage shows a red color. Final step is addition of the titrating solution, which turns the color to blue. Disappearance of last trace of reddish tinge marks the end point.

Procedure for hardness due to calcium alone is identical, but with a different buffer solution and indicator, and with final color after titration a violet blue.

Where desirable to determine hardness due specifically to magnesium in water, the operator makes total hardness test and calcium test, the difference being the magnesium value.

Methods used are based on discoveries of Dr. Gerold Schwarzenbach, of Switzerland, with Hall modifications making them convenient for general field use. Equipment and reagents are made available through Hagan Corpora-



Performance Reports on New Filter Medium in Improving Filtration and Separation Processes

✓ In Ion Exchange Columns

Mounted in top of the columns to prevent loss of resin in backwashing. Neva-Clog discs used in the bottom of these columns have increased capacity by at least 20%. Used in treating sugar liquors.

✓ In Rotating Leaf Pressure Filters

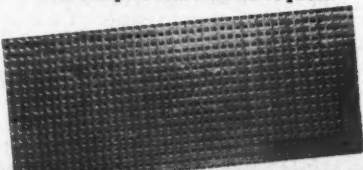
Replacing wire mesh cloth, which required acid cleaning treatment every third week to remove plugging solids. After 2 years' continuous service Neva-Clog has required no such treatment; nor has it required burning off of deposits. This has produced great labor savings and eliminated much "off stream" time. Used in filtering sugar liquors.

✓ In Baskets for Water Strainers

Recent experiments indicate that Neva-Clog strains lint and other solid particles from hot laundry waste water more efficiently and without clogging. These solids would otherwise clog auxiliary heat exchangers and reduce the heat transfer.

Investigations show that Neva-Clog is rigid, non-stretching, easy to clean. It offers better resistance to corrosion, heat, pressure and blinding. Neva-Clog can be supplied in any metal—as cylinders, discs, sheets, etc., and is adaptable to most filters, centrifugals and expellers; percolation, adsorption, absorption, extraction, gas diffusion, dewatering or depulping equipment, etc.

Test samples and data on request.



W. S. ROCKWELL CO.
220 Eliot Street, Fairfield, Conn.

When inquiring check CP 7331 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

tion (parent of Hall Laboratories, Inc.) and its associated firms, Calgon, Inc., and The Buromin Company.

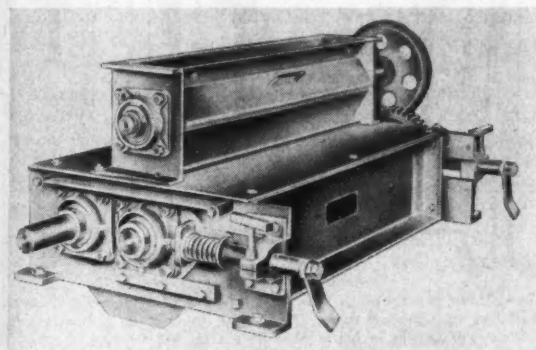
Source: Hall Laboratories, Inc., Dept. CP, Pittsburgh, Pa. . . or for more information check CP 7332 on handy form, pages 2 and 3.

Install crumblizers on mills or use them as separately driven pellet machines . . .

rolls adjust for fine or coarse crumblizing; give uniform feed distribution

Uses: For crumblizing pellets. May be used with builder's Junior and Simplex pellet mills and with various other makes of pellet mills. It can also be used as an integral unit with feeder attachment.

Features: Uniform feed distribution. Small power requirements. Rolls can be adjusted for fine or coarse crumblizing.



Rolls adjust for fine or coarse crumblizing

Description: Material is fed through a roll-type feeder which distributes pellets evenly over roll surface. Fines are kept to a minimum because cooling hopper distributes the pellets evenly over the rolls.

A 6 x 32" crumble roll with anti-friction bearings equipped with a special $2\frac{3}{4}$ " feed roll, but without drive, would be satisfactory to use with any pellet mill.

A 6 x 32" unit is recommended for use with 1 or 2 Junior Pellet Mills or 1 Simplex, and a 6 x 36" unit is recommended for use with 2 Simplex mills.

Units have anti-friction bearings throughout, rugged fabricated frame and convenient adjustment features.

Additional sizes to the two mentioned are 6 x 24" and 6 x 18". Weight range of all four units is from 750 to 1050 lbs. Capacities of four units are 6,500, 10,000, 15,000 and 20,000 lbs per hr. of $13/64$ " pellets.

Source: Model 100 crumblizer is built by Sprout, Waldron & Co., Inc., Dept. CP, Muncy, Pa. . . or for more information check CP 7333 on handy form, pages 2 and 3.

Coatings protect steel, concrete from corrosive splash

Information on 11 coatings for protecting steel, concrete and wood surfaces from corrosive splash or fumes is set forth in an 8-page bulletin. Literature is file-size, punched for insertion in standard ring binders. Bul. 7-1, issued by The Atlas Mineral Products Company, Dept. CP, 41 Walnut St., Mertztown, Pa. When inquiring specify CP 7334 on handy form, pages 2 and 3.

Quick Change

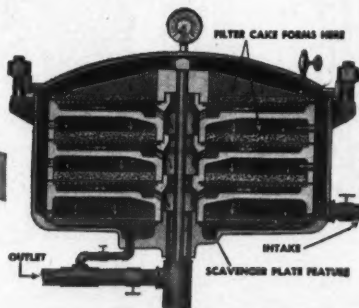
... of filter plates in SPARKLER FILTERS

means no shut-down for cleaning . . . The entire horizontal filter plate assembly in Sparkler Filters can be removed as a complete unit and a new assembly lowered into the filter in a few minutes without appreciable interruption in service. This quick change of plates is an exclusive Sparkler feature. No other filter has this unit assembly of plates for fast handling.

Another distinctive Sparkler feature is the firm, even support of the filter cake provided by the horizontal position of the plates. The filter cake will not crack or slip under variation in pressures or with intermittent operation of the filter. Any type of filter paper, cloth, screen, or filter media can be used without danger of breaking. There is no supporting strain on these materials.

Sparkler filters take up little floor space, are completely enclosed, and are available in stainless steel, mild steel, rubber lined, steam or brine jacketed, monel, nickel, or bronze. They are capable of efficiently handling practically any kind of liquid from thin alcohols to varnishes and resins.

Sparkler service includes laboratory test runs and engineering of continuous flow filtration for production line installations. Write, giving details of your filtering problem.



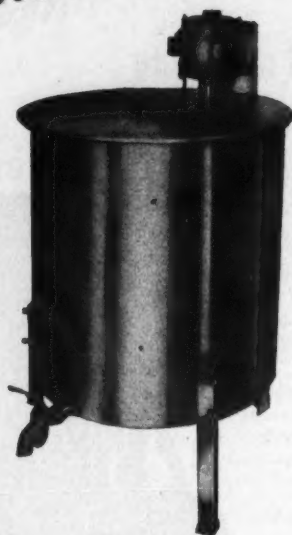
SPARKLER MANUFACTURING CO.

MUNDELEIN, ILL.

When inquiring check CP 7335 on handy form, pgs. 2-3

THIS COMPLETE MIXING UNIT

*Saves
Time and Labor*



Easier—Faster
to Load and Operate

Alsop Mixing Tanks make your mixing and blending operations extra easy, fast, efficient. The all welded stainless steel construction, rounded corners, and the highly polished, crevice-free surfaces mean less time and labor in cleaning. The shorter legs makes the whole Tank lower — easier to load and operate yet allows unrestricted clearance between the tank bottom and floor. Tanks only, to which any portable mixer can be mounted, are also available in a complete range of sizes. For easier — faster mixing — for efficient, economical operation, specify Alsop Tanks — sizes from 5 to 250 gallons capacity.

Write for a copy of our latest catalogue.

Our new catalogue completely describes our Mixing and Storage Tanks, Filters, Portable Mixers and Agitators. Write for your free copy. The Alsop Engineering Corporation, 504 Alsop Square, Milldale, Connecticut.

ALSOPE ENGINEERING CORP.

Filters, Filter Discs, Mixers, Agitators, Pumps and Tanks



When inquiring check CP 7336 on handy form, pgs. 2-3

Page 94

Scale Removed from Evaporator Heating Surfaces Without Shutting Down Process

Vapor and condensate flow periodically switched to pass through liquor lines, thereby washing away fouling deposits

USES: Designed for evaporation where formation of scale on evaporator heating surfaces, due to inverted solubility of dissolved salts, presents a problem.

For example, these evaporators are being successfully used in sulfite pulp mills in Scandinavia, where deposit of gypsum scale made evaporation of calcium-base waste liquor a costly and impractical procedure in conventional equipment. Rapid fouling of heating surfaces made it necessary to shut down frequently while scale was removed.

This type of equipment is adaptable to both natural- and forced-circulation applications.

Features: Scale is continuously cleaned off, while evaporation is in progress. Not only are heating surfaces cleaned, . . . vessels, pipelines, valves and other equipment operated in conjunction with evaporator

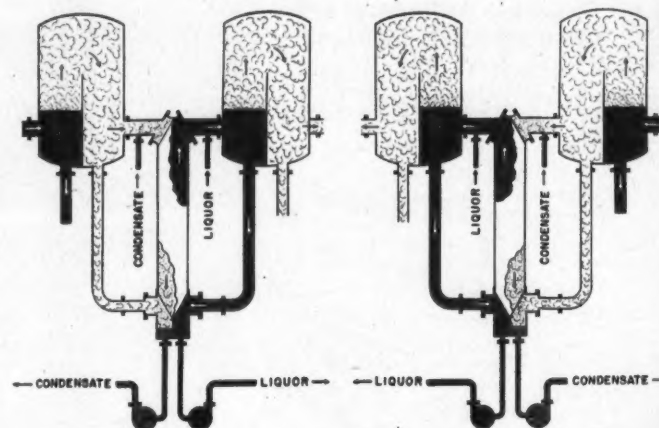


Fig. 2 — These two drawings show how liquor and condensate channels are switched to clean off scale. Note that liquor is on opposite sides of baffles in vapor chambers after the switch

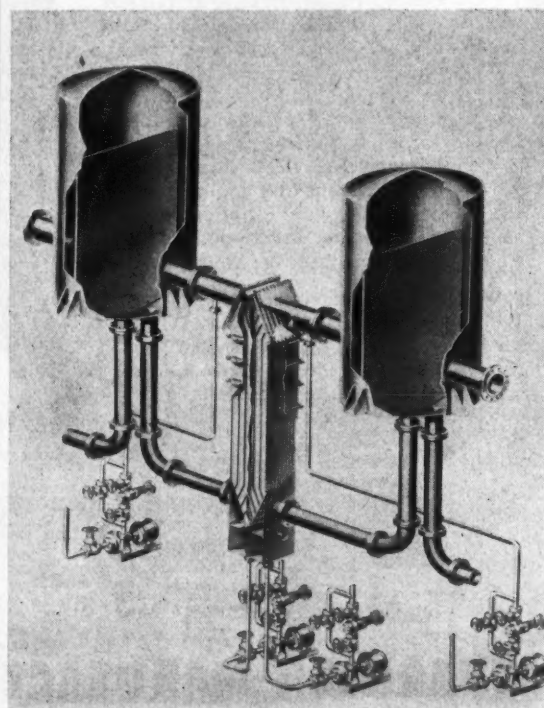


Fig. 1 — Cutaway view shows vapor chambers (left and right at top) and heating element (center) consisting of alternate channels separated by flat plates

also are prevented from fouling and plugging.

Description: As illustrated in diagram (Fig. 2), liquid and steam sides are periodically switched so that any scale deposited from the liquid is dissolved at timed intervals by vapor and condensate. Fundamentally, this form of evaporator equipment is similar in operating characteristics to the vertical long-tube recirculation and forced circulation types. However, flat plates are used for heat-transfer surfaces.

Evaporator consists of a vapor body with separating chamber where boiling liquid releases its vapors, a heating element holding the flat plates, and a recirculating line extending from lowest point in vapor body to bottom of heating element, permitting adequate recycle of liquid for wetted surface evaporation. Forced circulation types have a high-capacity pump in recirculation line.

The plates are long rectangular sheets placed face to face, separated from each other by spacers, and sealed to form a channel between each pair of plates. Assembly is enclosed by a reinforcing shell. Steam inlets, condensate outlets, vents, circulation connections and other usual items for evaporator heating elements are attached to shell.

An odd number of plates is always used, so as to provide an even number of channels. By suitable partitions at ends of channels, every other channel receives vapor or steam for heating; the ones in between carry liquid being recirculated.

Evaporation proceeds in usual manner, but, after a specified time interval (depending on rate of scale build-up and rate of its removal by washing), liquid side is

CHEMICAL PROCESSING

switched with condensing steam side by means of reversing valves at each end of the multiple-effect unit. At time of switching, there is a short shutdown, during which time liquid is transferred to what was previously the steam side.

Thus, when equipment is again started up, all parts previously subjected to scaling due to presence of boiling liquid will be washed by condensing vapors and condensate which is recycled before withdrawal and mixed with vapors entering each heating element.

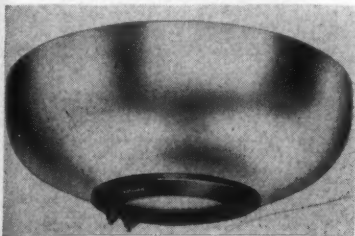
Source: Conkey flat plate heating surface evaporators are built by General American Transportation Corporation, Dept. CP, 135 S. La Salle St., Chicago 90, Ill. . . . or for more information check CP 7337 on handy form, pages 2 and 3.

Tanks, distillation units are heated with dished ring electric device . . .

clamps to spherically concave or convex working areas; occupies minimum of additional space

Uses: For use on water tanks, water distillation units and other equipment where a concave or convex surface requires efficient electric heat.

Features: Entire unit may be readily clamped to the working area and occupies a minimum of additional space. Application of this element eliminates the need for threaded openings and companion flanges in tank walls and, when used by manufacturers as original equipment, often leads to lower production costs.



Dished ring heater on tank bottom

unit can be formed to several different spherical radii to fit standard tank bottoms.

Nickel-chromium resistor wires are completely imbedded in the zircon insulating material to prevent accidental contact. Entire unit is cased in a rust-resisting steel sheath to retain its original shape at high temperature.

Source: Dished ring heaters are made by Edwin L. Wiegand Co., Dept. CP, 7517 Thomas Blvd., Pittsburgh 8, Pa. . . . or for more information check CP 7338 on handy form, pages 2 and 3.

Turn to Page 6

for an announcement of interest to

- Engineers
- Technicians
- Chemists
- Lab Workers

— and Other Readers of This Magazine

For unequalled selection of quality piping see the complete CRANE line

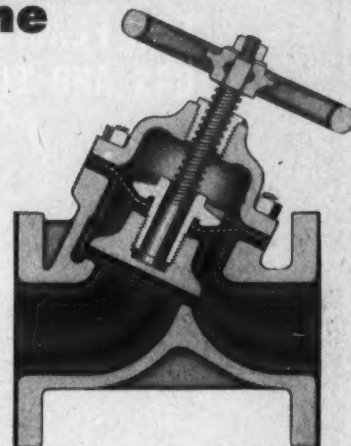
BETTER PERFORMANCE FROM DIAPHRAGM VALVES

Crane Diaphragm Valves are well suited to a variety of process fluids. Being packless, they eliminate stem leakage. Operating parts are isolated from line fluids. Y-pattern body assures greater flow capacity. They require less torque and fewer turns to open and close fully, even in larger sizes and at higher pressures.

Crane separate disc-diaphragm design offers many outstanding advantages. Diaphragm lasts longer because it is used only to seal the bonnet. Separate circular disc assures tight closure, even in case of diaphragm failure.

Regularly available in plain iron, or with Neoprene lining for fluids corrosive to iron. Also furnished in other body, lining, and diaphragm materials for special corrosive services. Send for Circular Ad-1761.

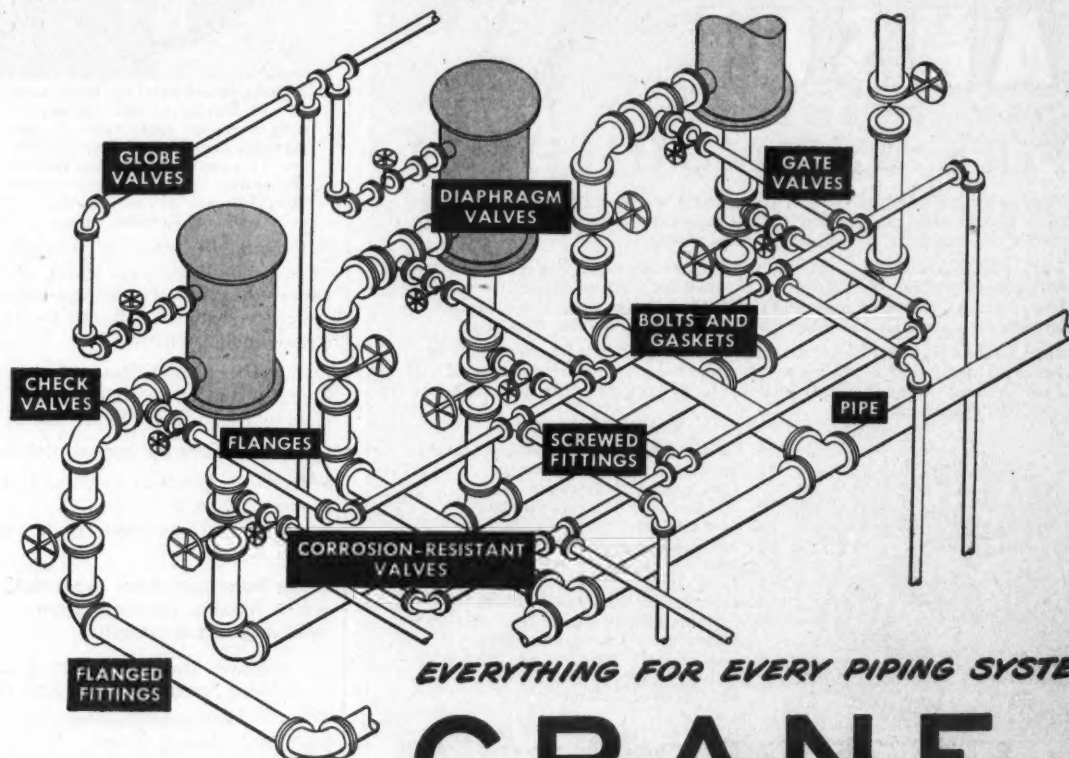
CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas



WORKING PRESSURES:

up to 150 pounds water, oil, air,
or gas; 180° F. max. temp. Sizes up
to 6-in. Screwed or flanged ends.

**ALL EQUIPMENT FOR THIS ABSORBER INSTALLATION, FOR
EXAMPLE, IS AVAILABLE ON ONE ORDER TO CRANE**



EVERYTHING FOR EVERY PIPING SYSTEM

CRANE

VALVES • FITTINGS • PIPE • PLUMBING AND HEATING

When inquiring check CP 7339 on handy form, pgs. 2-3

Your Best Protection

**FOR FLAMMABLE LIQUID,
GAS AND ELECTRICAL FIRES**

GASOLINE
OIL
LP-GAS
NAPHTHA
BENZENE

ALCOHOL
LACQUER
VARNISH
SOLVENTS
PAINTS, ETC.



ANSUL

DRY CHEMICAL FIRE EXTINGUISHERS

They're most dependable and years of field service on all kinds of industrial applications has resulted in outstanding design features available ONLY in Ansul Dry Chemical fire extinguishers.

FIRE PROTECTION by the dry chemical method has proved Most Effective as well as Most Economical. And only Ansul offers a complete line of hand, wheeled and stationary dry chemical fire extinguishers. Investigate Ansul Piped Systems for protection of special hazards.

Send for File No. 305. You will receive a variety of helpful printed matter. Included is our latest catalog which describes Ansul fire extinguishers of all sizes — from the small Ansul Model 4-10 Ansul Piped Systems and Ansul 3000 lb. Stationary Units.

- ADVANTAGES**
1. Quick, Effective Extinguishing Action.
 2. Recharge on the Spot (No special tools needed).
 3. No Annual Recharge Necessary.
 4. Low Maintenance Costs.
 5. ANSUL PLUS-FIFTY Dry Chemical used Exclusively.
 6. Long Range Stream.
 7. Effective in Winds and Drafts.
 8. Stream pattern forms heat shielding screen to protect operator.
 9. Listed and Approved by Underwriters' Laboratories, Inc., and Factory Mutual Laboratories.

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THE WHITE OIL

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FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN

DISTRIBUTORS IN PRINCIPAL CITIES IN THE UNITED STATES, CANADA, AND OTHER COUNTRIES

When inquiring check CP 7340 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Explosion-proof water cooler quenches workers' thirst in hazardous areas . . .

delivers smooth flow of 10.3 gph despite supply pressure variations of 20 to 85 lbs

Uses: Drinking-water cooler for use in potentially combustible atmospheres such as paint and chemical plants, refineries, collieries, etc. For restricted areas where dust, chemical or gas explosion hazards are present.

For corrosive atmospheres, special stainless steel front and side panels are available.

Features: Design eliminates possibility of any operating mechanism generating static electricity, or electrical system producing open sparks. Complies with all requirements of National Electric Code, Bureau of Standards, and all local and national sanitary codes.



Explosion-proof drinking water cooler. 1) Condenser with thermostatically-controlled water valve, 2) hermetically-sealed compressor and motor, 3) compressor terminal box, 4) thermostat control and compressor relay housing, 5) conduit and fittings for electrical wiring

and motor. Compressor terminal box, relay, thermostat control and all electrical wiring and fittings are enclosed in approved explosion-proof housings and conduit. A water-cooled condenser, unaffected by lint or dust-laden air, increases cooling efficiency.

Optional foot-pedal flow control works in conjunction with fingertip control on stainless steel top, although both operate independently. Either may be used.

One of 11 Temprite coolers, this unit is PB-10WE.

Source: Temprite Products Corporation, Dept. CP, 47 Piquette, Detroit 2, Mich. . . . or for more information check CP 7341 on handy form, pages 2 and 3.

Dries heat-sensitive materials while frozen, leaving them unchanged chemically . . .

selective absorption heating unit especially suited to drying materials damaged by 100°F temp.

Uses: Selective absorption heating unit for freeze-drying. For drying delicate, heat-sensitive materials, even while frozen. Especially suited to driving water off materials damaged by temperatures above 100°F, including certain types of pharmaceuticals, biologicals, blood and chemicals. For laboratories and large or small-scale production applications.

Features: Dries materials while frozen, leaving them

Shaft Packing No Chemical Can Attack

**Teflon "Chemiseal" #711 Packing
Stays in Service Months Where
Other Packings Failed in Hours**

"We've got a pump handling hypochlorites," a paper manufacturer told us, "and we can't find a packing that will last more than 5 hours." So we sent him a set of Chemiseal #711. It went into continuous service in November. It's still in there and going strong months later.

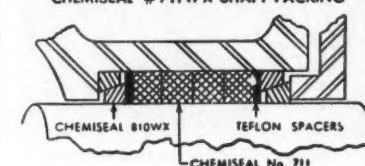
A steel plant tried a #711 packing last summer on a pump handling coke liquor. Recently they ordered #711 for 40 more pumps.

There are hundreds of similar cases in our files.

CHEMISEAL #711 SHAFT PACKING



CHEMISEAL #711WX SHAFT PACKING



No chemical — acid, solvent, caustic, oil or gas — can attack or dissolve a Teflon Chemiseal #711 or #711WX packing. "Chemiseal" non-corroding, non-contaminating, heat-resisting gaskets, packings, adapters and expansion joints can save you hundreds of dollars and countless production delays.

Phone, write or bring your gasket and packing problems to —

UNITED STATES GASKET CO.

618 N. 10th Street
Camden, New Jersey

When inquiring check CP 7342
on handy form, pgs. 2-3

CHEMICAL PROCESSING

want MONEL VESSELS for handling corrosive liquids?

Below: Installation view of
a monel-clad steel reflux
drum at a Southern refinery.



Let us furnish estimating
data or quotations to meet
your exact specifications

When you want process equipment built of monel for handling corrosive liquids containing chloride ions, non-oxidizing acids, or other corrosive ingredients, remember that this metal is no stranger to Chicago Bridge. Our shops know how to handle it and our plants are located to provide prompt service. Write the nearest office for information or a quotation.

CHICAGO BRIDGE & IRON COMPANY

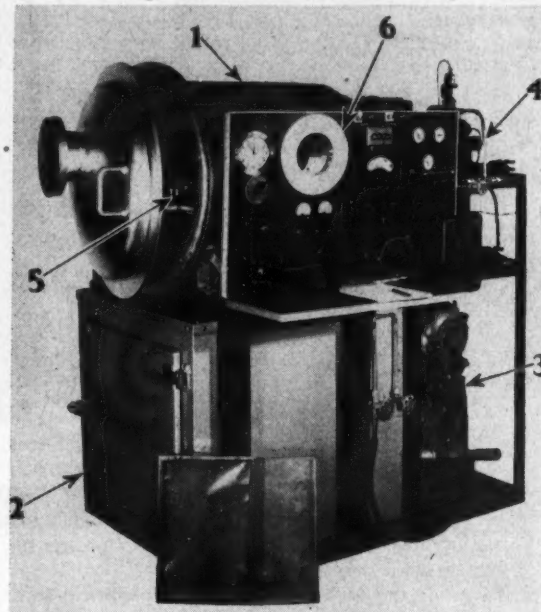
Atlanta 3 2107 Healey Bldg.
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Boston 10 1007-201 Devonshire St.
Chicago 4 2116 McCormick Bldg.
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Detroit 26 1535 Lafayette Bldg.
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Los Angeles 17 1536 General Petroleum Bldg.
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Philadelphia 3 1650-1700 Walnut St. Bldg.
Salt Lake City 4 507 West 17th South St.
San Francisco 11 1245-22 Battery St. Bldg.
Seattle 1 1307 Henry Bldg.
Tulsa 3 1649 Hunt Bldg.

When inquiring check CP 7343
on handy form, pgs. 2-3

PROCESSING EQUIPMENT

unchanged chemically. Employs infra-red radiation in certain highly-effective wave lengths in the "fundamental vibration region" where radiant energy is absorbed selectively by different materials, depending on chemical composition of material.

This makes it possible to select radiation in region where



1) Vacuum chamber, 2) Freezer cabinet, 3) Vacuum pump,
4) Refrigeration system, 5) Heater frame, 6) Control panel

greatest percentage of total energy will be absorbed by the water in the product to be dried.

Description: Materials may be in glass containers or on trays. Special trays are used with glass bottoms transparent to this radiation, which is applied only through bottom of tray.

A compact, general-purpose, self-contained unit is furnished for laboratory or small-scale production. Large installations are likely to be tailor-made for individual product requirements.

Source: This process developed for commercial applications by Dry-Freeze Corporation, 830 N. Wabash Ave., Chicago 11, Ill. Manufactured by Proctor & Schwartz, Inc., Dept. CP, Philadelphia 20, Pa. . . . or for more information check CP 7344 on handy form, pages 2 and 3.

Compiles 4 engineering papers on pumps

Volume II of "Engineering Papers of Hydraulic Institute" compiles 4 advanced-technical papers on pumps. Sections include papers entitled 1) 'Cavitation in Centrifugal Pumps', 2) 'The Centrifugal Pump in the Process Industries', 3) 'The Operation of Centrifugal Boiler Feed Pumps', and 4) 'Submergence for Centrifugal Condensate Pumps'. Each paper treats subject matter extensively and comprehensively; includes many charts, graphs, sketches, and mathematical formulae.

For your copy of Vol. II, remit \$2 direct to Hydraulic Institute, Dept. CP, 90 West St., New York 6, N. Y. When inquiring specify CP 7345 on handy form, pages 2 and 3.



Tops for broad-range CHEMICAL FILTRATION

NFM VINYON[†] and VINYON N[†] are excellent general purpose filter cloths. They are available in a variety of weaves and in any desired standard width from 26" through 72" or as made up filter element covers.

Over Forty Years of weaving experience have given us the "know how" so necessary to the production of top quality Industrial Filtering Fabrics. We weave all of our Synthetic Fiber Cloth including Glass, Nylon, ORLON* (an acrylic fiber cloth), Saran, VINYON[†], and VINYON N[†].

Write us about your requirements, we'll be glad to send test cloths, if you are not sure which cloth material is best.

*TM — E. I. duPont de Nemours
†TM — C & CCC

"Excellent Resistance—No Attack" are the operating reports when these filter cloths are used for filtering:

ACIDS

SULPHURIC
HYDROCHLORIC
NITRIC
HYDROFLUORIC
AQUA REGIA

CAUSTICS

SODIUM HYDROXIDE
POTASSIUM HYDROXIDE

and

CHLORINE or BROMINE WATER
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Edward L. Bateman

When inquiring check CP 7346 on handy form, pgs. 2-3



Discover how wonderfully small trifling expenses mount up to large sums.

—Ben Franklin's Almanac, 1757

A single per cent saved here and another
per cent saved there strengthens thy
working capital for the coming year.

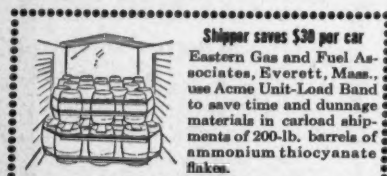
—Acme Steel's Notebook, 1950

Look, Mr. Management, how long has it been since you walked through your shipping room and checked up on your packaging operations?

How long since you sharpened your eye and your pencil on ways to save in shipping and materials handling?

Helping you save money, time, materials, labor is where Acme Steel comes in. Nine out of ten companies start cutting costs when they reach for the telephone and call in one of our sales engineers and get the benefit of what we have learned to do with Acme flat steel strapping, Acme stitching machines and wire, and other Acme Steel products.

We show you here two specific examples of savings by our customers. If you want more evidence, we have hundreds of actual case studies to show you. In fact, more than 45,000 Acme customers are getting the benefits of Acme Methods now. Call the Acme Steel service office nearest you. (There are 45 of these offices in the principal cities of the U.S. and Canada.) Or send the coupon below for more details on your special problems.



Shipper saves \$30 per car
Eastern Gas and Fuel As-
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uses Acme Unit-Load Band
to save time and dunnage
materials in carload ship-
ments of 200-lb. barrels of
ammonium thiocyanate
flakes.



Material costs cut 43%
Labor costs cut 50%
Shipping weight cut 7%
In addition, Acme Box
Stitching Methods im-
proved carton strength
and durability for Conner
Brothers, Ltd., sea food
canners in Newfoundland.

ACME STEEL

Under the American business
system of open competition,
Acme Steel has enjoyed
sound, steady growth. Since
1901, Acme Steel has made
283 consecutive dividend pay-
ments to its stockholders.

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ACME STEEL COMPANY, Dept. CP-40, 2840 Archer Avenue, Chicago 8, Illinois
We manufacture _____ Please send me booklets on Acme Methods checked.

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|---|---|
| <input type="checkbox"/> Please have sales engineer call. | <input type="checkbox"/> Bag and Box Assembly—"Profit by Stitching" demonstrates cost-cutting Acme Silverstitchers and Acme-Champion Stitchers. |
| <input type="checkbox"/> Packaging, Shipping, Materials Handling—"Savings in Shipping" tells how to save money and safeguard customer good will with Acme Steelstrap. | <input type="checkbox"/> Product Assembly—"Acme-Morris on Metal Stitchers"—for savings in fastening metal-to-metal or metal-to-other materials. |
| <input type="checkbox"/> Shipping (Carload and L.C.L.)—"Acme Unit-Load"—The story of reduced damage claims and better handling for shippers. | <input type="checkbox"/> Book Assembly—"Acme-Morrison Book Stitchers" for savings in the graphic arts field. |

NAME _____ POSITION _____
COMPANY _____
STREET _____
CITY _____ ZONE _____ STATE _____

When inquiring check CP 7347 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

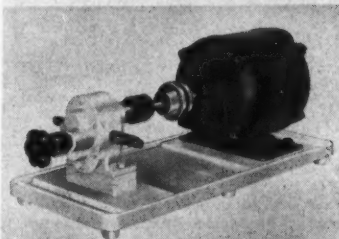
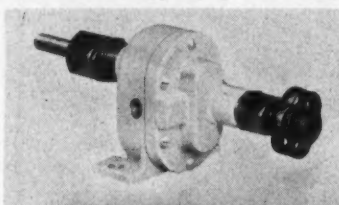
Pumps corrosive liquids at 3 to 30 gpm . . .

self-priming stainless unit has
manual by-pass control

Uses: Stainless steel self-priming
pumps for corrosive liquids, chemi-
cals, drugs, pharmaceuticals, cos-
metics, whiskies, wines. For all types
of installations.

Features: Compact design. Mini-
mum moving parts. Pumping ca-
pacity continuously maintained.

Description: Five sizes for 3, 5,
10, 20 and 30 gpm at free discharge.



Individual units or complete pump
assemblies, direct or belt-driven

Handy manual by-pass control
valves regulate pressure and flow-rate.
All sizes furnished as individual units
or as complete pump assemblies,
direct-drive or belt-driven. Model
ESP.

Source: Ertel Engineering Cor-
poration, Dept. CP, 22 Front St.,
Kingston, N. Y. . . or for more in-
formation check CP 7348 on handy
form, pages 2 and 3.

Briefs high-vacuum process equipment

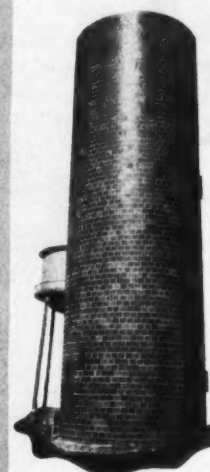
High-vacuum processing equipment is
portrayed and briefly described in 4-
page, 2-color bulletin. Includes dryers
(rotary, shelf, freeze, drum), impreg-
nators and dryer-impregnators, ex-
traction and solvent recovery apparat-
us, stills, evaporators, combination
evaporators and dryers, fumigation and
metallizing units, etc.

Manufacturer states he is prepared to
meet requirements for specialized
equipment. Bulletin No. 705, issued
by F. J. Stokes Machine Company,
Dept. CP, 5900 Tabor Rd., Phila-
delphia 20, Pa. When inquiring
specify CP 7349 on handy form, pages
2 and 3.

FOR LOWER STORAGE COSTS

SPECIFY

Kalamazoo GLAZED TILE



You practically eliminate
maintenance problems and
costs when you store bulk ma-
terials such as coal, gravel, and
sand in tanks and silos made
of Kalamazoo Glazed Tile. Far
superior to concrete — easy
to clean — cannot contaminate
contents. For a permanent
low-cost installation, specify
Kalamazoo Glazed Tile.

WRITE FOR COMPLETE FACTS

Kalamazoo TANK AND SILO COMPANY

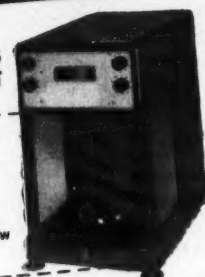
432 Harrison Street • Kalamazoo, Michigan

When inquiring check CP 7350 on handy form, pgs. 2-3

FISHER Gramatic BALANCE

A NEW, DIRECT-READING
ANALYTICAL INSTRUMENT

- Fast weighing (20 seconds)
- No weights to handle
- Beam under constant load
- One-scale reading
- Constant sensitivity
- Completely automatic below
100 milligrams



weighs in one-third the time required
by the usual balance.

Turn control knobs to select built-in
weights. Corresponding figures appear on
the direct reading scale.

Weights under 100 milligrams are indi-
cated automatically.

The Gram-atic Bal-
ance weighs samples up
to 200 grams.

For 115 and 230 volt
50-60 cycle A.C.

\$895 each

Weight is read directly
on indicator.

FISHER SCIENTIFIC CO. EIMER AND AMEND

When inquiring check CP 7351 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

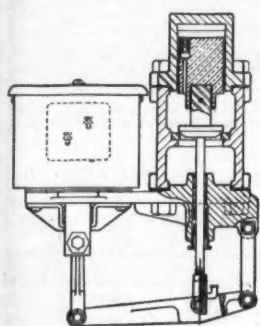
Dash pot of solenoid valve aids effective control of water hammer . . .

slows down closing action of valve in high velocity line $1\frac{1}{2}$ to 2 seconds

Uses: Eliminates water hammer that can result from sudden closing of a valve in a high velocity pipe line. Designed for heavy duty service and for handling temperatures up to 400° F.

Features: No auxiliary pistons to expose close tolerances to silt-laden liquids. Smaller sizes will operate under differential pressures. Solenoids are rated to provide unusual reserve factor.

Description: Valve is identified as Series 4000. Dash pot construction consists of a bronze piston fitted within the top housing of the valve, and pinned to the valve to follow its movement. An upward seating ball check controls the flow through a port in this piston. When valve is opened, and piston moves up, liquid above piston flows freely through the port. There is no resistance to instant opening of valve orifice.



Valve has integral dash pot

When valve closes, however, the ball check closes the port; liquid must then flow between the piston and housing, a restricted passage which slows the closing of the valve. Piston and valve are independent of the action of the valve-opening push rod.

Body is bolted together for maximum strength, and for easy access to all operating parts. Standard construction has cast iron body with bronze piston. However, all bronze can be furnished. Valve and seat are stainless steel. Available in $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$ and 2" sizes. Smaller sizes will operate under differential pressures to 150 lbs.

Source: Series 4000 valve is made by Johnson Corp., Dept. CP, Three Rivers, Mich. . . or for more information check CP 7352 on handy form, pages 2 and 3.

Geon-covered metal conduit proves flexible, non-binding between moving parts . . .

resists moisture, coolants, greases and oils; particularly useful with machine tools

Uses: Geon-covered flexible metal conduit for electrical shielding applications, particularly machine tools.

Features: Resistant to moisture, coolants, greases and oils. Liquid-tight steel fittings are usable both with standard and water-tight conduit boxes. Conduit is extremely flexible, and does not bind or restrict movement when used between moving parts on machine tools. Withstands abuse and long service.

Description: Tough, abrasive-resistant Geon cover applied over durable galvanized convoluted steel tubing. Steel fittings are attachable and re-attachable by user, or can be permanently attached by manufacturer.

Furnished in mill or cut lengths, in $\frac{3}{8}$ to 2" I D sizes.

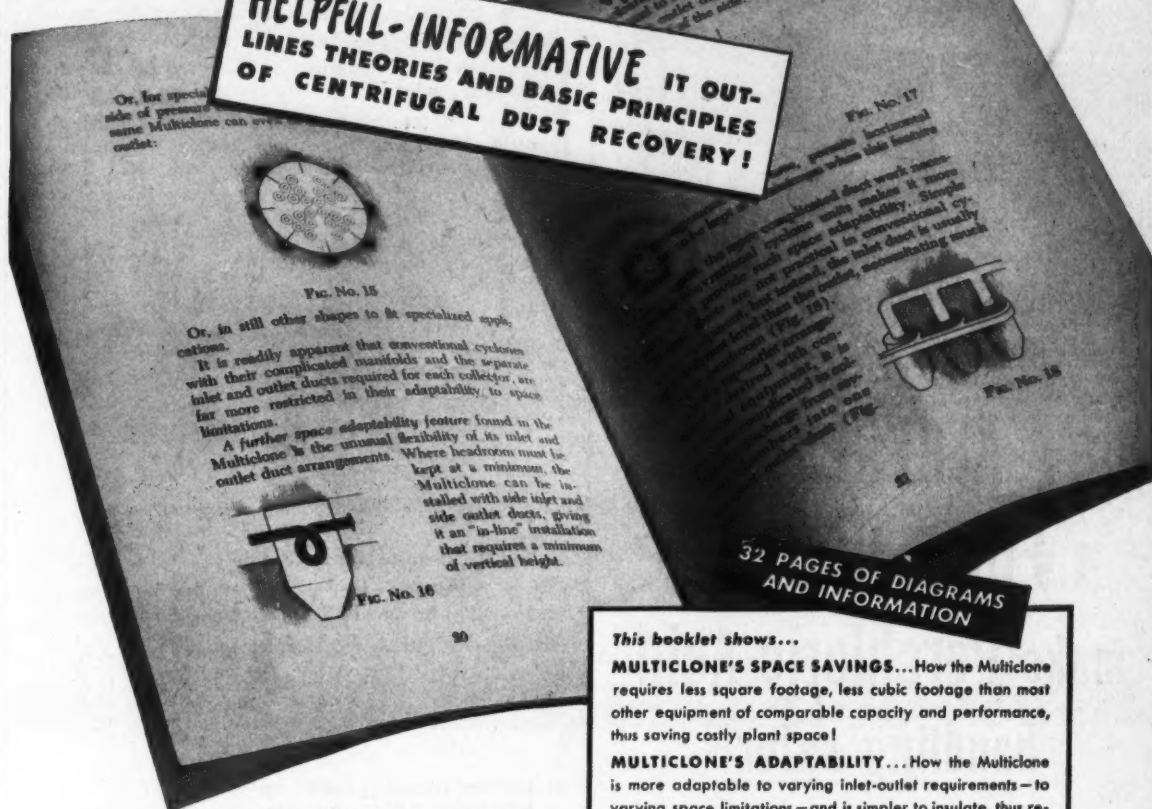
Source: Chicago Metal Hose Corporation, Dept. CP, 1304 S. Third Ave., Maywood, Ill. . . or for more information check CP 7353 on handy form, pages 2 and 3.

SEND FOR THIS 32 PAGE

MULTICLONE

BOOKLET

HELPFUL-INFORMATIVE IT OUTLINES THEORIES AND BASIC PRINCIPLES OF CENTRIFUGAL DUST RECOVERY!



32 PAGES OF DIAGRAMS AND INFORMATION

This booklet shows...

MULTICLONE'S SPACE SAVINGS... How the Multiclone requires less square footage, less cubic footage than most other equipment of comparable capacity and performance, thus saving costly plant space!

MULTICLONE'S ADAPTABILITY... How the Multiclone is more adaptable to varying inlet-outlet requirements—to varying space limitations—and is simpler to install, thus reducing installation costs!

MULTICLONE'S EFFICIENCY... How Multiclone's multiple small diameter tubes, made possible by its exclusive vane design, give higher centrifugal forces and more complete cleansing of all suspended particles—even small ones of 10 microns and less!

MULTICLONE'S LOW MAINTENANCE... How the Multiclone has no high speed moving parts to repair or replace, no pads or filters to clean or renew, nothing to choke gas flow or increase draft losses as suspended materials are recovered. Multiclone draft losses remain uniformly low—recovery efficiencies uniformly high—at all times!

Make sure that a copy of this helpful booklet is in your reference files by sending for your copy now!

NO MATTER whether you are now using mechanical dust recovery equipment or are planning the installation of such equipment at some future date, here is a booklet that is full of helpful and valuable information on centrifugal dust recovery. It not only explains the basic methods and principles involved, but also shows the important differences between small and large diameter separating tubes, shows how to simplify your duct work and reduce installation costs, and outlines many other important factors to be considered in selecting mechanical dust recovery equipment.

In addition, this informative booklet illustrates and explains how MULTICLONE's unique vane design is fundamentally different...how it makes possible greater compactness, simpler installation, high recovery of the small particles as well as the medium and coarser ones, and many other facts on MULTICLONE advanced design.

A limited supply of these booklets is available for free distribution to those interested in mechanical recovery equipment and methods. Write for your copy today.

NOW SELLING...



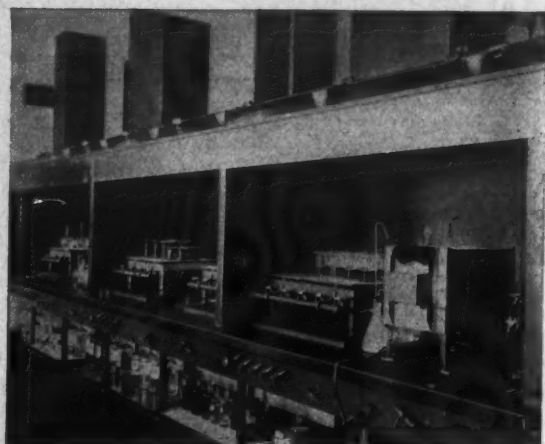
... in all parts of the U.S.A. and foreign countries.

WESTERN
Precipitation
CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices: 1023 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
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PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

When inquiring check CP 7354 on handy form, pgs. 2-3



International Nickel Company, Inc., Research Laboratory, Bayonne, New Jersey

ALBERENE FUME HOODS make Perchloric Acid handling safer!

Want to reduce the worry in using perchloric acid in your laboratory analyses? Now Alberene Stone Corporation offers you fume hoods *specially designed* to reduce hazards in working with perchloric acid . . . *specially designed* to give you greater safety. And for prompt advice on any of your laboratory fume problems write to Alberene Stone Corporation of Virginia, 419 Fourth Avenue, New York 16, N. Y. Or better yet—visit our nearest Alberene branch office.

ALBERENE STONE

When inquiring check CP 7355 on handy form, pgs. 2-3

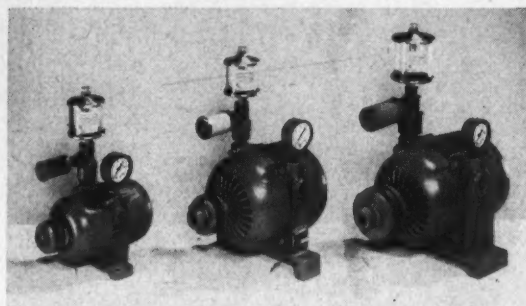
PROCESSING EQUIPMENT

Housings of rotary compressors, vacuum pumps, fit into smaller space . . .

less overall height and integral cooling fins are features of improved design

Uses: Improved housing for Gast rotary compressors and vacuum pumps.

Features: More compact, with less overall height than formerly. Mounting dimensions remain unchanged, so that new models are interchangeable with old. Integral



Compact housings for rotary compressors, vacuum pumps

cooling fins dissipate heat more rapidly.

Can be fitted into smaller space, improving appearance where pumps or compressors are mounted externally.

Description: Bul. B-5 contains full details.

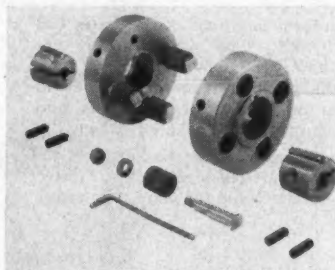
Source: Gast Manufacturing Corp., Dept. CP, Benton Harbor, Mich. . . or for more information check CP 7356 on handy form, pages 2 and 3.

Simplified coupling takes up to 120 hp at 3550 rpm; fits pump or motor shafts . . .

easily installed, requiring only normal tightening

Uses: Couplings for shafts of pumps or motors.

Features: Four drilled recesses in bushing accommodate "off" and "on" positions of set screw driving holes of coupling. Holes in bushing are offset so that, when set screws contact them, force is applied in a direction either to drive the tapers of the two pieces tighter or looser, depending whether coupling is being removed or put on.



Component parts of Magic-Grip coupling

taking up to 120 hp at 3,550 rpm. Other sizes will be added later. An adaptation of manufacturer's Magic-Grip sheave principle.

Magic-Grip coupling consists primarily of two cast iron discs with tapered bores, rubber-covered tubes assembled on studs, split tapered bushings, and two set screws for each disc. Since it is split part way, bushing slides easily

Dependable Flow Control

with

DAVIS FLOAT VALVES



THE DAVIS NO. 60
FLOAT VALVE

WHERE top speed plant operation is vital don't forget the commonplace pieces of equipment which must operate dependably in order to insure the highest efficiency in every plant department.

For float valve dependability, the Davis No. 60 is unexcelled. Here are a few of its outstanding features:

1. The Famous Davis Single-Seal Pilot Stem Valve Tight-closing and non-sticking. Standard sizes will open against any pressure up to 125 lbs.
2. No internal packing! Disc renewable easily and economically. Hot or cold liquid at high or low pressure handled without hunting or water hammer.
3. Sizes 3" and smaller are all-brass valves. Larger sizes have semi-steel body, bronze bonnet, piston and trim. Globe or angle body patterns.

DAVIS REGULATOR CO., 2562 S. Washtenaw Avenue, Chicago, Ill.



DAVIS

REGULATOR COMPANY

When inquiring check CP 7357 on handy form, pgs. 2-3

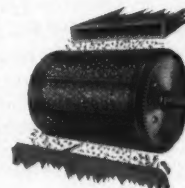
HOMER PERMANENT non-electric MAGNETIC DRUMS and DUCTS for AUTOMATIC REMOV- AL of TRAMP METALS



Pat. Pending

HOMER Magnetic Ducts for the removal of tramp iron from Air or Gravity conveyed Grains, Textile and Chemical materials, etc. These units are used with almost any type of processing machinery.

HOMER Magnetic Drums for removal of tramp iron from fine or pulverized dry products, as, Foods, Chemicals, Plastics, Paint Pigments, etc. These units can be used with chutes, hoppers, screw or belt conveying machinery.



Send for detailed information.



The HOMER MANUFACTURING CO., Inc.

Dept. 40

LIMA, OHIO

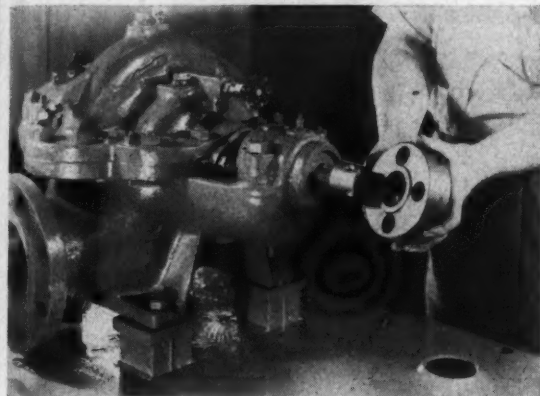
Producers of Magnetic Separator Equipment Since 1923

When inquiring check CP 7358 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

on pump or motor shaft. Coupling is then placed over the bushing, and two set screws inserted into "on" holes.

Screws are alternately tightened by wrench until they engage recesses in bushing. A key between the bushing



Coupling is placed over bushing, and two set screws are inserted into "on" position holes

and coupling, for driving the combination and lining up the correct "off" and "on" positions of both coupling and bushing, prevents misplacement.

Set screws are tightened until bushing is fastened on shaft, and the coupling and bushing tapers are firmly set. Only normal tightening is required, since both bushing and coupling are machined so that excess pressure is unnecessary to secure complete unit to shaft.

Source: Allis-Chalmers Manufacturing Co., Dept. CP, Milwaukee, Wis. . . . or for more information check CP 7359 on handy form, pages 2 and 3.

Pulls nails, clinches bands to barrel staves; prevents injury and waste . . .

one tool does complete job; crimping tooth easily replaced; handles are pinch-proof

Uses: Removes nails and staples from heads of either barrels or kegs and sets band securely to staves.



Tool clinches band to staves

Protects workers from injury and prevents separation of staves and waste of contents.

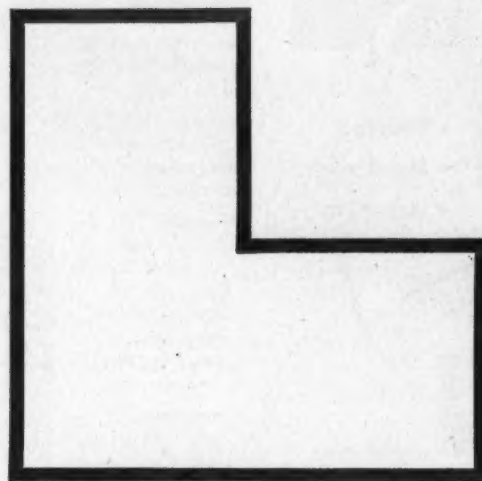
Features: Made of tough malleable metal with a hardened, replaceable crimping tooth.

Description: One tool does complete job. Handles are pinch-proof and deliver adequate power at pressure points. At end of one

handle is a nail puller; staple puller is on other handle.

Source: Barrel Band Safety Set is made by Don E. Williams Co., Dept. CP, 1819 Fifth Ave., Moline, Ill. . . . or for more information check CP 7360 on handy form, pages 2 and 3.

PROCTOR HAS THE ANSWER



Divide up this plot of ground into sixteen smaller plots, each of equal size and all of the same shape as the diagram shown at the left. Par for this puzzle is five minutes. LOOK FOR THE SOLUTION WHICH WILL APPEAR NEXT MONTH.

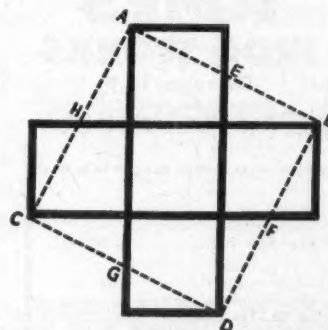
TO THIS PUZZLE *and your drying problem*

Of course, providing the answer to this puzzle will be much simpler than providing the answer to your drying problem. All we have to do to answer the puzzle is turn to the "answer" page in the book from which this puzzle was taken. There's much more to solving drying problems. But puzzles or drying problems—reaching the solution must follow a similar pattern. You must begin with a clear understanding of the problem and then with an open mind, think logically along the possible lines of approach that are open to you.

That is exactly the way Proctor engineers go about solving your drying problem. With your help, they obtain a clear grasp of your requirements and then through their research techniques they explore the possible avenues of approach to the solution. There is no short cut to an intelligent solution—but the time and effort can be reduced when Proctor engineers are consulted early . . . as soon as you realize that drying is to be a part of your processing. Not only does early consideration speed the solution—it

may save you hundreds of dollars that otherwise may be spent for preliminary or subsequent equipment not properly dovetailed to the drying system required to meet your needs.

When you have a drying problem—consult Proctor engineers early—avail yourself of their services and laboratories—at no cost or obligation. You'll find it pays. Call or write today.

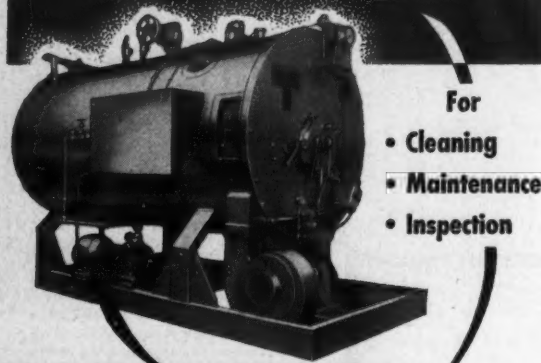


The problem was—transform large square into five small squares, all equal to one another, whose total area shall be equal to the original large square.

PROCTOR & SCHWARTZ Inc • 663 Tabor Road • Philadelphia 20, Pa.

When inquiring check CP 7361 on handy form, pgs. 2-3

COMPLETE ACCESSIBILITY IS PROVIDED



- For
- Cleaning
 - Maintenance
 - Inspection

AMESTEAM GENERATOR

design provides a better automatic Unit—soundly engineered to meet your needs.

All internal and external parts and auxiliaries are completely accessible. Front and rear flue covers, burner head and one-piece rear baffle are mounted on davit-type hinges, Sizes A-50 and larger. It is unnecessary to dismantle the entire front end to gain access to front tube sheet—and front need not be opened to clean tubes and furnace.

Controls are at eye-level, in a sturdy metal box to protect them against damage—auxiliaries under pressure vessel have ample space around them for inspection, lubrication or general maintenance.

It all adds up to the easiest boiler to operate, clean and maintain—and it generates steam quickly, efficiently and at low cost.

Sizes 10 to 500 HP—15 to 200 lbs.—
arranged for Oil, Gas, Oil-Gas Combination.
Choice franchises still available.
Write us.

AMES IRON WORKS

Oswego, N. Y.

Builders of Better Boilers since 1848
Manufactured under license in Canada by
VOLCANO, Ltd., Montreal, P. Q.

AMES IRON WORKS
Box 604, Oswego, N. Y.

Please send me your new free bulletin on AMESTEAM
Generators.

Name.....
Company.....
Address.....
City.....State.....

PROCESSING EQUIPMENT

**Gas masks make own oxygen;
canisters last 45 min . . .**

now in use by Detroit fire department; are well adapted for use in combating industrial fires

Uses: For protection against smoke and fumes as encountered in industrial fires. Also used in connection with gas-proof suits providing protection against gases harmful to skin.

Features: Apparatus is entirely self-contained and involves no trailing airlines or heavy tanks. Light weight, simple harness that holds it permits complete freedom of movement.

Operation of device does not depend on an outside supply of air or oxygen; wearer is fully protected in atmosphere devoid of oxygen.

Description:

Consists essentially of a face piece, two flexible breathing tubes, heavy neoprene breathing bag, canister holder and harness. Total weight is 13 1/2 lbs.

Facepiece has full-vision lenses kept fog-free by flow of

dry oxygen over their inner surfaces. Mask and harness can be put on and operate in 45 seconds.

Exhaled breath of wearer flows through one of the tubes to canister where chemicals absorb carbon dioxide and moisture, and liberate oxygen. Oxygen enters breathing bag which acts like a lung. When chemical supply in canister runs low, a timing device automatically rings a bell. Enough chemicals to produce 45 minutes of oxygen are in each canister. Canisters can be replaced in a few seconds.

Source: Chemox gas masks are made by Mine Safety Appliances Company, Dept. CP, 411 7th Ave., Pittsburgh 19, Pa. . . or for more information check CP 7363 on handy form, pages 2 and 3.

**Powdered or granular materials
flow smoothly, swiftly
from drums . . .**

special drum head with slide-gate and pneumatic vibrator attaches quickly to standard drums

Uses: To speed and regulate the positive flow of powdered or granular materials from drums into vats, hoppers and mixing containers. For quick attachment to any standard-size drum containing powdered or granular materials.

Features: Can be removed from one drum and attached to another in as little as 60 seconds. Hence, a single unit can be employed to handle materials from several different drums.

Description: "Drum Discharger" consists of a standard-size steel drum head with an adjustable slide-gate opening, a permanently-mounted Cleveland pneumatic vibrator, an operating valve and a 360° swivel connector. Accessories include pressure regulator, air line lubricator and line filter.



Mask worn like baseball catcher's
chest pad guards against smoke
and foul gases

accuracy at High Operating Speed with Despatch LABORATORY OVENS



Despatch Laboratory and Production Ovens are ideally suited to all types of research . . . testing . . . production control. They are designed to provide the closest heat uniformity through every inch of the work chamber . . . consistently accurate temperature control at all heats . . . ample speed to process capacity loads at any desired operating temperature.

Chemical and analytical, drying and baking, preheating and aging, sterilizing and curing, food dehydrating — these are just a few of the uses. Available in six models, with inside dimensions ranging from 13"x13" to 37"x25"x50".

- Positive Air Intake
- Guaranteed Heat Elements 2700 to 12,000 watts
- High Volume Fan
- Air Velocity Control
- Accurate Indicating Control
- Modern Design — Rounded Corners

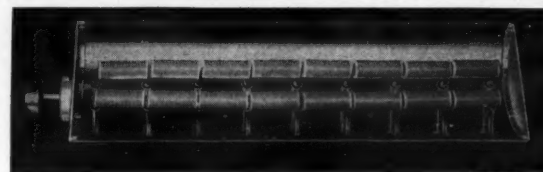
DESPATCH

Established OVEN CO. in 1902

MANUFACTURERS OF OVENS
FOR ALL PURPOSES
ASK FOR BULLETIN
No. 106

343 DESPATCH BLDG., MINNEAPOLIS 14, MINN.

When inquiring check CP 7364 on handy form, pgs. 2-3



Patented

HIGH TEMPERATURE, RADIANT HEAT FOR PROCESSING

Doyle Infrared Heating and Drying Units provide, at small equipment cost, the high temperature, concentrated, radiant heat often required for surface drying, treating and conditioning coatings on paper, fibre and textiles. Especially effective with synthetic resins which react favorably under a high flash of heat, also in impregnating processes using latices or impregnating compounds.

Many industries use Doyle Units in continuous processing of sheet and roll materials, also as accessories to drying drums and ovens and for similar purposes.

Each Doyle Unit is a complete, standard assembly including scientifically-designed reflector and control switch. Manufactured in a wide range of sizes for convenient installation over conveyors or as an integral part of other processing equipment. For technical specifications and prices write to:

THE J. E. Doyle COMPANY

1222 WEST 6TH STREET • CLEVELAND 13, OHIO

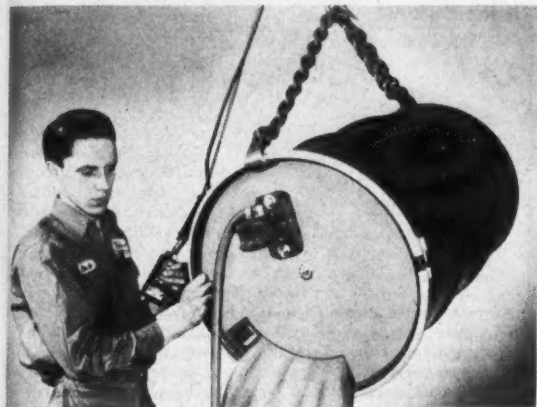
When inquiring check CP 7365 on handy form, pgs. 2-3

CHEMICAL PROCESSING

When inquiring check CP 7362 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Regular drum head is removed and Drum Discharger placed in position and securely fastened by carriage bolt. For material-discharge, drum is positioned over vat or mixing container by any standard lift equipment or chain fall.



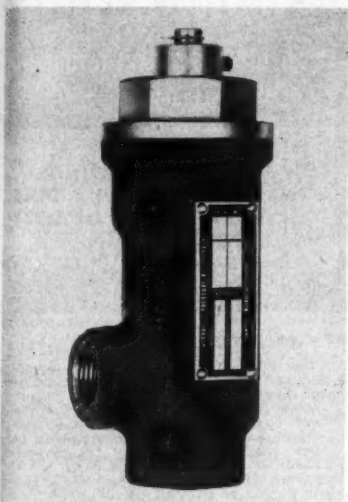
Pneumatic drum-discharge unit

Slide-gate is opened to desired position, and powerful vibrator is actuated to assure steady, regulated flow.

Source: The Cleveland Vibrator Company, Dept. CP, 2706 Clinton Ave., Cleveland 13, Ohio . . . or for more information check CP 7366 on handy form, pages 2 & 3.

Relieves pressure in hydraulic lines to 5,000 psi . . .

silent cartridge type relief valve is not harmed by pressure surges; meets Navy specs



Cartridge type hydraulic relief valve

Uses: Hydraulic pressure relief in range of 100 to 5,000 psi.

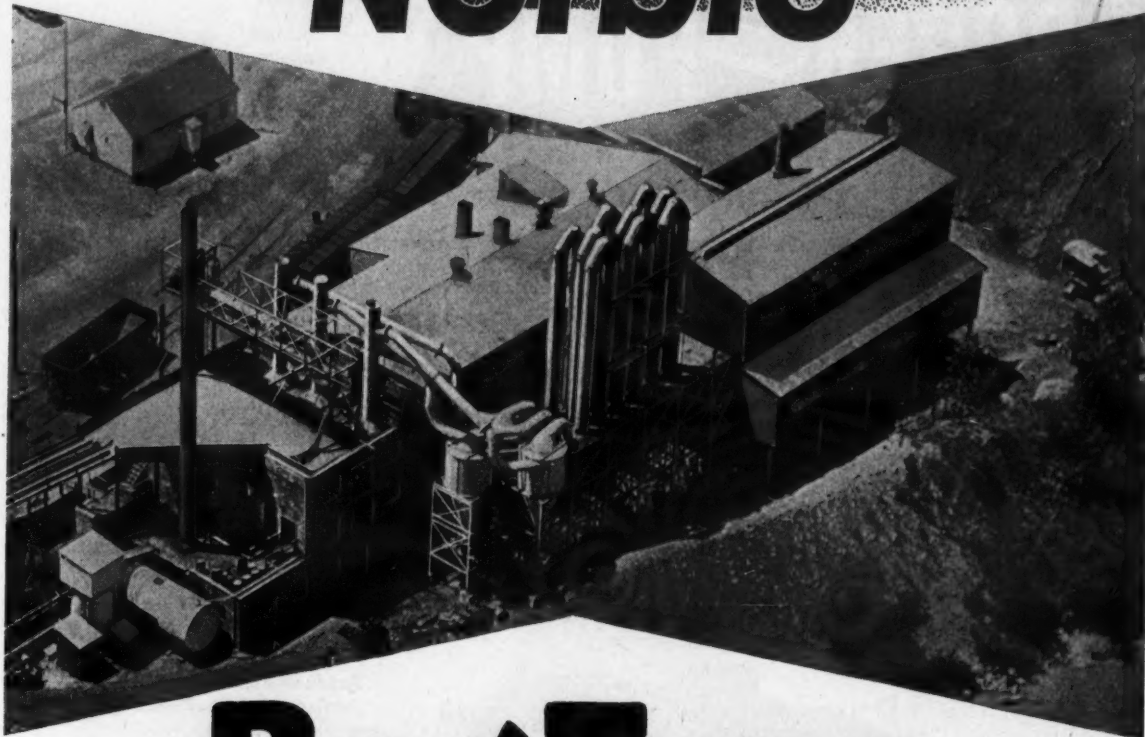
Features: Meets Specification AN-V-lb for Army and Navy aeronautical use. No more than 5% change in operating characteristics throughout temperatures ranging from minus 65° to plus 160°F. Full-load surges do not change repeat accuracy.

Description: Entire operating mechanism is contained in cartridge and may be re-

placed without breaking line. Pressure adjustments are quickly made with a screw. Free from squeal and chatter, the design eliminates wire draw and provides high-volume flow at all pressures. This last fact frequently makes it possible to use a smaller valve. Operating differential can be 7% or less.

Source: Precision relief valve is a product of Hydraulics Division, Pantex Manufacturing Corporation, Dept. CP, Pawtucket, R. I. . . . or for more information check CP 7367 on handy form, pages 2 and 3.

Norblo



Bag Type

DUST AND FUME COLLECTION

78 cylindrical bags, having 936 square feet of free cloth area, are the basic unit of Norblo Automatic Bag Type Dust Collectors. As only one unit is out of operation at a time, and then only for a few seconds per cycle, Norblo operates continuously at full rated capacity. Timing can be changed for adjustment to dust load without shutting down.

Write for Bulletin 164-2 giving complete description, diagrams, dimensions and capacities of Norblo heavy duty automatic bag type dust collectors.



Star Performance in Heavy Duty

1. Continuous operation, easy maintenance; any compartment can be shut down for bag repair, etc., without affecting the others.
2. Upward air flow inside bags keeps them always fully distended — allowing free fall of dust for maximum gravity separation.
3. Cyclic cleaning is adjustable for varying dust load instantly and without shutting down the collector — flexibility and efficiency tailored to the job.

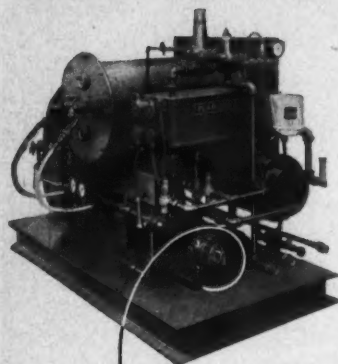
THE NORTHERN BLOWER COMPANY

6419 BARBERTON AVENUE • CLEVELAND 2, OHIO

Automatic and Standard Bag Type Fume and Dust Collectors, Norblo Centrifugal and Hydraulic Collectors, Cement Air Cooling Systems, Exhaust Fans

When inquiring check CP 7368 on handy form, pgs. 2-3

ROPER SERIES F PUMP

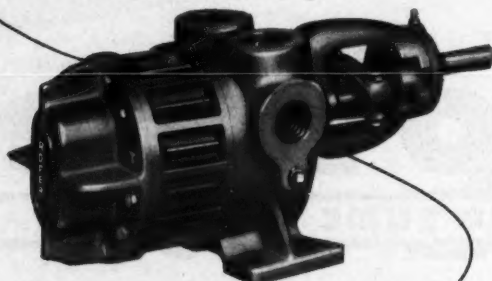


INTEGRAL PART OF THE PEABODY AUTOMATIC BURNER

★
Here is what a Peabody catalog says about the Roper

"Quiet, Slow Speed Operation — The pump used in the Peabody Automatic Burner operates at relatively low speeds. As a result, excessive noise and operating maintenance usually associated with high-speed pumps is entirely eliminated, as well as excessive maintenance costs from worn out parts."

Pressures to—
300 P.S.I.
Capacities—
1-300 G.P.M.



QUIET, DEPENDABLE OPERATION...4-PORT DESIGN

Bunker "C" oil or heavy fuels used in industrial burners must be supplied at the *exact pressure* and *exact viscosity* to get maximum burner efficiency. That is one of the many reasons why Peabody installs the Roper Series F Pump as original equipment on their units.

This smooth-operating, dependable pump is easily installed in this and similar applications. Saves work, time, labor costs. Four-port design makes this possible. This offers eight optional piping arrangements — 4 for CW and 4 for CCW rotation. If you require a pump in sizes 1-300 G.P.M., pressures up to 300 P.S.I. with parts and construction features that are service-proved for long-life, investigate the Roper Series F. Standard fitted and special fitted models to suit specific needs.

Send For Literature Today

GEO. D. ROPER CORP.
744 Blackhawk Park Ave.
ROCKFORD, ILLINOIS

ROPER
Rotary Pumps

DEPENDABILITY SINCE 1857

When inquiring check CP 7369 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Reduces power costs for small refrigeration plants...

"Midget" air purger increases tonnages, too

Uses: "Midget" air purger for small refrigeration plants of 50 tons capacity.

Features: Excess head pressure is reduced, non-condensable gases are purged, and condensed gases returned automatically to the system, resulting in more efficient operation of compressors, increased tonnage and considerable reduction in power costs.

Efficiency compares favorably with that of larger, more costly units. Construction assures continuous, uninterrupted operation. Large storage capacity collects foul gases.

Description: May be installed close to receiver or at any convenient place in plant.

Source: Rex Engineering & Sales Co., Dept. CP, Box 5141, Oklahoma City, Okla. . . or for more information check CP 7370 on handy form, pages 2 and 3.

Explosives, combustibles pumped without leakage at 750°F or less...

bellows-type units operate at rates up to 100 gpm

Uses: Bellows-type chemical pumps for leak-proof handling of lead tetrachloride, ethyl mercaptan, cresylic acid, hexamethylene-diamine, Dowtherm, or any material that does not attack stainless steel.

For handling explosive or combustible materials at 1 drop per minute up to 100 gpm, with temperatures up to 750°F. Also for controlling poisonous vapors or nauseating odors.

Features: No moving pressure joints: corrosive, explosive and poisonous materials are completely sealed within. No waste from leakage, even at elevated temperatures. Interchangeable parts.

Infrequent repairs handled at low cost. Unit can be completely dismantled or assembled in less than 1 hr by any mechanic and his helper. All pumps of this line are capable of handling intermittent 100% overload, maker reports.

Description: Bellows, valves and tubing furnished in brass, aluminum, bronze or stainless steel.

Standard units can handle 20, 40, 60, 80, or 100 gpm. About 3 sq ft floor space is required by 20-gpm pump. Typical of custom-built models is an

Stanzoil NL-34

New Worker Comfort
in This Elastic Knit-Lined
Neoprene Glove



This Stanzoil Duplex NL-34 is designed expressly for, and is sold only to, industry. Elastic-knit lining stretches with every hand movement, gives new worker comfort and protection, more freedom than old-style flannel linings. Slip on and off easy as a cloth glove. Non-slip finish holds oily objects in a sure grip. Chocolate-brown DuPont Neoprene resists damage from oils, acids, caustics. Stanzoil NL-34's give you comfort and protection at lower cost per hour. Sizes small, medium and large. Larger Duplex Gloves, Catalog No. NL-42 and NL-52. Ask your supplier or write for informative catalog today.

Synthetic Rubber Division

The Pioneer Rubber Company
641 Tiffin Road Willard, Ohio, U.S.A.
Los Angeles, California



OVER 30 Years of Quality Glove Making

When inquiring check CP 7371 on handy form, pgs. 2-3



"Anets" LABORATORY
AUTOMATIC TEMPERATURE and
HUMIDITY CONTROL CABINETS

YOU CAN Select ANY TESTING CONDITIONS at the TURN OF A DIAL for PRECISION CONTROL of QUALITY and UNIFORMITY.

All electric automatic operation. Range: room to 140°F. temperature — room to 95% relative humidity. Electric controllers maintain selected conditions to 1/10° plus and minus. Cooling equipment can be supplied at additional cost. Used by leaders in electric, electronic, radio, chemical, food, paint, medical and pharmaceutical fields.

STAINLESS STEEL CONSTRUCTION

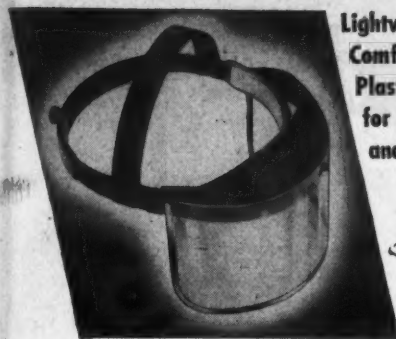
New LSC-16 has full 7 cu. ft. capacity. Entire inner cabinet, ducts, air conditioner, blower wheel, aluminum heating unit, steam generator, water feeder, shelf hangers, door liners, etc., are made of heavy gauge stainless steel. Heavy molded rubber gasket around doors for a perfect seal. Controlled, conditioned air is uniformly circulated to every shelf, from top to bottom of cabinet. Write stating your requirements, the operating ranges, etc., and our engineering department will be glad to submit recommendations and data.

- ★ Testing Electric and Electronic Units. Simulating tropical weather conditions.
- ★ Checking moisture absorption, package testing, weathering, and breakdown tests.
- ★ Testing plastics, fabrics, metals, woods, etc.
- ★ Incubation, germination, bacterial, culture development, fermentation, proofing, etc.

ANETSBERGER BROS., Inc.
168 N. ANETS DR. NORTHBROOK, ILL.

When inquiring check CP 7372 on handy form, pgs. 2-3

CHEMICAL PROCESSING



**Lightweight,
Comfortable
Plastic Protection
for Face, Head
and Eyes**



Style VI-64

If you want the fellows doing light grinding, wood working, spot welding to wear eye protection, give them Willson Protecto-Shields*. The large, one-piece visor—4", 6" or 8" long—provides both front and side protection. The adjustable, padded headband provides a snug comfortable fit. Workers wear them for long periods without fatigue. There's plenty of room for prescription glasses and the visor swings up off the face when not in use.



VI Headgear, small browguard



V3 Headgear, large browguard

For complete information on these products and their application, as well as many more eye and respiratory protective devices, get in touch with your nearest WILLSON distributor or write us direct.

*T.M. Reg. U.S. Pat. Off.

WILLSON
Established 1870

Willson Products, Inc., 227 Washington Street, Reading, Pa.

When inquiring check CP 7373 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

air-activated metering pump with range from 1 to 30 drops per stroke.

Source: The Emlen Corporation, Dept. CP, Krear Bldg., Emlenton, Pa. . . . or for more information check CP 7375 on handy form, pages 2 and 3.

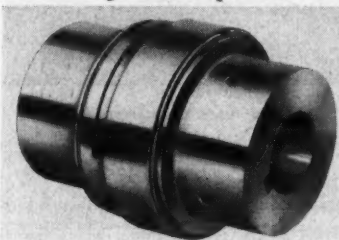
**Larger bore capacity
a feature of improved
flexible coupling . . .**

interchangeable load-cushions
avoid shutdowns

Uses: Flexible couplings for motor-driven or engine-driven pumps, compressors, generators, pulverizers, and nearly all machinery of 50 to 1000 hp.

Typical of the various types of cushion materials for specific services, indoors or out, is Essex SXB, designed for use where oils, chemicals, ozone and heat would deteriorate ordinary cushions rapidly. It employs oil-resistant neoprene protected by bronze.

Features: Improved coupling line features larger bore capacities, added



Improved flexible coupling

ease of installation. Inside sleeve is in 2 parts, providing a sleeve in each body. Bodies are interchangeable, since both are machined alike for the removable steel collar. Collar is held in place by snap-ring instead of bolt.

Couplings adjust instantly for misalignment, shock, vibration, oscillation, surge or backlash. Except on reversing load, half of the cushions are idlers; hence, a set of new cushions is always in the coupling. Shutdowns are thus eliminated, since load-cushions are quickly interchanged without tearing down the coupling.

Cushions are always in sight. There is no wear on metal jaws. All couplings operate quietly although no lubrication is necessary.

Description: L-R type C and H couplings. Heavy models are electric cast steel. Manufacturer builds couplings for services from 1/6 to 2500 hp.

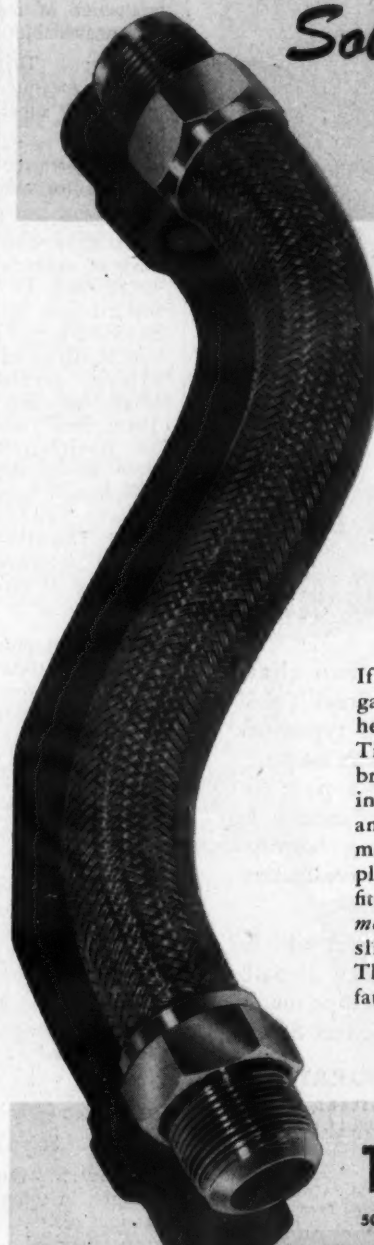
Source: Lovejoy Flexible Coupling Company, Dept. CP, 5001 W. Lake St., Chicago 44, Ill. . . . or for more information check CP 7376 on handy form, pages 2 and 3.

Titeflex

The ALL-METAL Flexible Tubing

*Solves all these
Problems
for you :*

- VIBRATION
- EXPANSION
- CONTRACTION
- MISALIGNMENT
- FLEXING
- PRESSURE
- VACUUM
- TEMPERATURE
- CORROSION



If you use tubing to convey liquids, gases or semi-solids, Titeflex can help you do it better, at less cost. Titeflex flexible tubing is made in brass, bronze, stainless, monel and inconel, to fill most heat, pressure and corrosion requirements. It's made in a full range of sizes, complete with any required types of fittings. In addition, Titeflex is *all-metal*, does not depend on packed sliding joints for its flexibility. That's why it is more resistant to fatigue . . . why it lasts longer.

*Write us for catalog outlining
Titeflex advantages in full.*

Titeflex, Inc.

500 Frelinghuysen Ave., Newark 5, N. J.

**TITEFLEX ALL-METAL FLEXIBLE TUBING STAYS
TIGHT WHEN THE GOING IS TOUGH.**

When inquiring check CP 7377 on handy form, pgs. 2-3

PIPE MARKERS



**anyone
can use—
everyone
can read**

QUICK-LABEL Pipe Markers conform to American Standards Association Pipe Identification System. QUICK-LABELS come on handy cards . . . stick without moistening. Names of materials printed in large black letters on correct ASA background colors. CAN BE READ UP TO 75 FEET. Markers for over 140 materials, including all materials listed in ASA Standard A13, available on Brady Stock Cards. Specials made to your order. QUICK-LABEL Pipe Markers are Silicone Plastic coated to resist dirt, grease, fumes, moisture . . . indoors or out. Replace slow and costly painting and hand stenciling. Exclusive Starter-Strip automatically releases part of label for fast peeling. QUICK-LABELS mark your pipes so that anyone who can read will know what's in them. QUICK-LABELS leave no room for doubt . . . or tragedy. Write for useful literature and FREE SAMPLES today.

**FREE
SAMPLES**

W. H. BRADY COMPANY Established 1914
Manufacturers of Self-Sticking Tape Products

Chippewa Falls 10, Wis. Distributors in 125 Cities
When inquiring check CP 7374 on handy form, pgs. 2-3

Why put up with this?

when this...

COSTS SO MUCH LESS IN THE LONG RUN!

● Yes, it's in the long run that **ELECTRUNITE** Stainless Steel Tubing really pays off. In all types of processing equipment—where heat or corrosion-resistance play a part in limiting the life of ordinary tubing—the extra cost of this long-lasting tubing is an inexpensive investment in long-range economy.

Send *today* for a free booklet which gives the complete story about **ELECTRUNITE** Tubing and Pipe made of Republic **ENDURO** Stainless Steel.

REPUBLIC STEEL CORPORATION
STEEL AND TUBES DIVISION • CLEVELAND 8, OHIO
Export Dept.: Chrysler Building, New York 17, New York



ELECTRUNITE®

STAINLESS STEEL TUBING AND PIPE

When inquiring check CP 7378 on handy form, pgs. 2-3

Page 106

PROCESSING EQUIPMENT

Precision work possible with compact, hand-operated bed turret . . .

unit fits 9, 10, 13" swing lathes without changing basic lathe; accurate to 0.0005"

Uses: To permit economical production of precision parts without affecting basic lathe. Especially useful for production of replacement parts which would be otherwise unavailable.

Features: Turret head indexes within plus or minus 0.0005", measured 4" from turret face. Accuracy is made possible by superfinished index pin fitted to lapped-steel bushing.

Square turret tool block and double tool cross slide are available for other multiple tool repetitive work.

Description: Hand-lever operated bed turret mounts on inside bed ways of maker's 9, 10, and 13" swing lathes, can be locked in position at any point along usable length of bed. Turret head can be positioned close to spindle nose because base clears saddle wings. This eliminates excessive overhang of turret tools.



Bed turret does not change basic lathe

Double gibs provide precision adjustment of turret slide; 3 needle bearings assure long life, easy action for hand-lever assembly.

Turret ram has stop screws for each tool position which index automatically with the head. Head may be back-indexed or spun to skip tool positions. Crank-type binder lever locks turret head.

Specifications for all sizes are: effective feed of turret slide, 4"; distance from center of turret head to top of slide, 1-1/2"; distance across turret head, 4-7/8"; head may be bored to take six 5/8" or 3/4" shank standard turret tools.

Source: South Bend Lathe Works, Dept. CP, South Bend 22, Ind. . . or for more information check CP 7379 on handy form, pages 2 and 3.

Freight costs drop when this light but strong container is adopted . . .

15-gal stainless drum can be emptied completely and thoroughly cleaned; easy to handle

Uses: Shipping of liquid chemicals, oils, etc.

Features: Strong, easy to clean and handle. Light weight, in comparison with standard acid carboys, reduces freight costs . . . in one case, freight savings on a single trip amounted to 16% of cost for the containers. Spherical bottom permits complete drainage of contents, even by siphoning.

Containers save space in shipping and storage. Compared with unstacked 12-gal carboys, the drums stacked two-high and containing the same amount of material, require less than one-third the floor space.

Description: The Lee stainless container has a capacity



IT'S NEW!

The BRIGHTON MODEL A-110 ELECTRICALLY HEATED LABORATORY SYNTHETIC RESIN UNIT!

The following features assure absolute control:

- (1) Variable speed drive.
- (2) Type 316 stainless steel.
- (3) Pressure or vacuum.
- (4) Temperature control by means of electronic thermometer
- (5) Multitubular condenser and glass decanters for solvent method cooking.
- (6) All explosion-proof electrical equipment.
- (7) Provision for cooling the batch at will.

BRIGHTON COPPER WORKS, Inc. Cincinnati, O

When inquiring check CP 7380 on handy form, pgs. 2-3

Stainless Steel and Nickel Alloy

THOMSEN

Equipment for the Processing Industries

Sanitary & Brine Pumps

Direct drive and heavy duty coupling types. Smooth, steady flow. Higher production, lower cost. Sanitary rotary seal. Precision workmanship means less wear and longer service. Easier to keep clean. Write for descriptive data giving capacities, prices, etc.

\$31.15 UP

Valves and Fittings

Complete line nickel alloy and stainless steel. Finest of workmanship in every detail. No pit-holes or rough surfaces. Highly polished to mirror smoothness. Easily cleaned.

Line Filters and Tubing

Filter barrels of white metal or stainless steel. 1", 1 1/2" and 2" 1,000 to 4,000 lbs. per hour capacity. Stainless steel and nickel alloy. Tubing, 10' lengths, 1" to 4" diam. All finishes. Ask your jobber or write for descriptive literature.

L. C. THOMSEN & SONS, Inc.
KENOSHA, WISCONSIN

BE WISE BUY WISE

When inquiring check CP 7381 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

of 15 gal and weighs 27 lbs. It is made of Armco Type 304 stainless steel, and incorporates the basic features of the Lee beer barrel, proved by long satisfactory service involving rough handling.

Reinforced runners and rigid chime construction strengthen the container. All-welded seams assure easier cleaning and greater sanitation. Top chime has depressed hand-holds. User's name may be stamped on top chime for permanent identification. Cap is of a new double construction, provided with wrench fittings, and permanently chained to container.

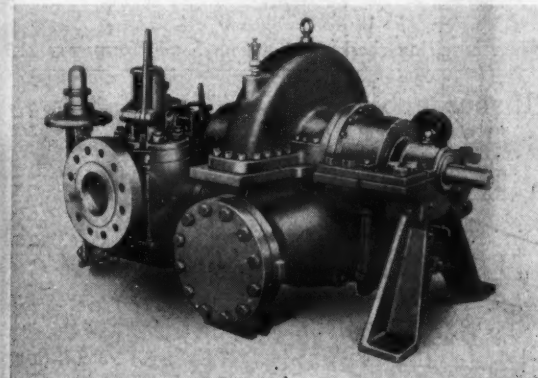
Source: Developed by Steel Cooperage Co., Division of Industrial Stamping and Manufacturing Co., Dept. CP, 4801 Bellevue Ave., Detroit 7, Mich. . . or for more information check CP 7382 on handy form, pages 2 and 3.

All labyrinth shaft sealing used in single-stage turbine for high pressure . . .

prevents leakage, reduces losses, assures long service, low maintenance

Uses: Standard single-stage turbine, especially designed for high pressure service. Initial pressures to 1450 psig, initial temperatures to 950 F and back pressures to 300 psig.

Features: First single-stage, mechanical-drive turbine with all labyrinth shaft sealing, according to manufacturer.



Single-stage turbine for high pressures

Seals are comprised of a series of shaft grooves and mating tongues of stainless steel packing.

Number of labyrinths in shaft depends on exhaust pressure rating, as many as 52 being used for highest pressures. Seal prevents leakage, cuts losses, requires less maintenance and gives long service.

Turbine is supported at true centerline, and front end is mounted on a flexible channel, providing for extreme thermal expansion encountered in high-temperature applications. This type mounting is said to permit both radial and axial expansion without disturbing shaft centerline.

Description: Furnished with any of 8 types of governors, including mechanical shaft, vertical flyweight with or without oil relay, pressure governors for pump and blower drives and auxiliary tripping devices. A separate trip, operating independently of governing system, gives positive protection from overspeeding.

In 3 sizes for capacities to 2000 hp. Model CP.

Source: De Laval Steam Turbine Company, Dept. CP, Trenton 2, N. J. . . or for more information check CP 7383 on handy form, pages 2 and 3.

Special technique assures quality of Kellogg "knock-down" vessels

ONE of the frequent causes of high cost in the field-construction of large refinery vessels does not really start in the field at all. Actually it occurs in the shop-fabrication of these "knocked-down" vessels.

Mis-alignment is the field man's bogey . . . mis-alignment, not only between segments of any one course of a vessel but also between the different courses themselves.

To preclude the possibility of saddling any constructor's field crews with the costly field correction of "misfits," Kellogg shops follow a special routine developed from both shop and field experience.

In effect Kellogg completely "builds" even the largest vessels right in the shop. Beyond matching individual segments to master templates, each successive course of every vessel is superimposed on the previously assembled course. "Knocked-down" vessels built in this manner for the field can't help but fit.

Such accuracy in fabrication has brought wide recognition of Kellogg quality in all types of vessels. It gives assurance of exact tray positioning and leveling and of close tolerances in nozzle positioning. It's another reason why Kellogg vessels—completely shop-built or shop built in "Knock-down" form—achieve high operating efficiencies and low maintenance records.

Illustrated—Alloy clad 25' diameter reactor being "Knock-down" fabricated in Kellogg shops.



To master temperature and pressure use
M. W. KELLOGG
piping and process equipment



The M. W. Kellogg Company, Inc. (A subsidiary of Pullman, Inc.) — Offices in New York, Jersey City, Buffalo, Los Angeles, Tulsa, Houston, Toronto, London and Paris

When inquiring check CP 7384 on handy form, pgs. 2-3



SURFAMAX

POROUS STAINLESS STEEL FILTERS

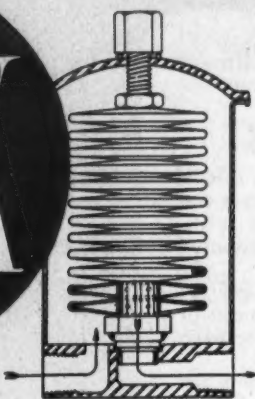
Pass More Fluid—Retain More Solids

The high efficiency of SMX is proved in plant practice. Available in six pore openings, this permanent Micro Metallic unit provides a maximum filter area in a convenient small container. On a minimum initial cost, SMX gives continuous service without constant maintenance expense and attention. Simple, positive operation may be completely automatic. Highly polished for easy cleaning. Special SMX design features, or shapes to order, afford a solution to all liquid or gas filtering problems.

Write for detailed bulletin or information on your particular problem!

MICRO METALLIC CORPORATION
196 Bradford Street Brooklyn 7, N. Y.

When inquiring check CP 7385 on handy form, pgs. 2-3



PROCESSING EQUIPMENT

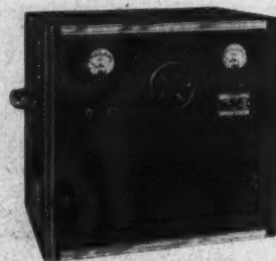
Provide any DC output variable to 30 v with single unit . . .

operates from 95-135 v., 60c., single phase alternating current line

Uses: Provides a stabilized and regulated source of variable DC voltage from AC power lines.

Features: Eliminates necessity of purchasing separate units for 6, 12 and 25 volt outputs and offers any DC output up to 30 volts.

Description: Unit operates from a 95 to 135 volt, 60-cycle, single-phase alternating current line; delivers a direct current output that is variable from 0 to 30 volts. The allowable output current available at any voltage setting is 15 amperes.



Provides DC output up to 30 v.

The DC output voltage is stabilized. Regardless of AC line voltage fluctuations, the set value of DC output voltage does not change. Unit is also regulated, meaning that DC output voltage remains constant although load may vary. Stabilization and regulation are given as 0.25 per cent for an output setting between 6 and 30 volts. RMS ripple voltage does not exceed plus or minus 0.1 volt.

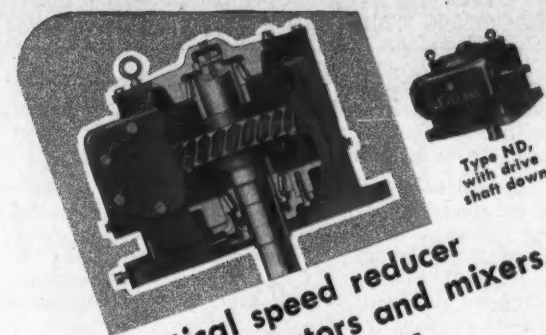
Source: Unit is named Varicell and is made by Superior Electric Co., Dept. CP, Hannon Avenue, Bristol, Conn. . . . or for more information check CP 7387 on handy form, pages 2 and 3.

Cool air conditioning water economically in small towers . . .

meet requirements for from 5 to 15 tons of refrigeration

Uses: Designed for self-contained air conditioning units, but applicable to any installation with a water-cooled compressor. Selection of models offers capacity range of 5 to 15 tons of refrigeration.

Features: Units are easily installed and are built for utmost economy in operation. They have water turbine drive and the only electrical connection



Type ND, with drive shaft down

A new vertical speed reducer to drive agitators and mixers

IMPROVED worm gear drive—in seven sizes each of two types—ready for prompt delivery. Designed especially for agitators and mixers, and for use with supplementary low-speed spur gear drives, without requiring outboard bearings. WRITE FOR BULLETIN 125, describing types NU and ND, with capacity charts and dimension data. The Cleveland Worm & Gear Co., 3257 East 80th St., Cleveland 4, Ohio.



For personalized service, write or phone John E. Milliken Cleveland exch. Vulcan 3-4560

When inquiring check CP 7388 on handy form, pgs. 2-3

"If your problem is CLASSIFYING or THICKENING . . . consult HARDINGE".

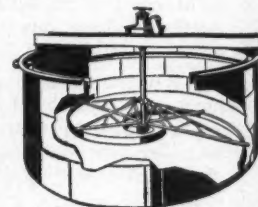


COUNTER-CURRENT CLASSIFIERS

The Hardinge Counter-Current Classifier is a simple and trouble-free device for wet separations between 20 and 200 mesh. For finer separation down to micron sizes, a Hardinge Hydro-Separator is used. Write for Bulletin 39-B-13 on wet classifiers.

"AUTO-RAISE" THICKENERS

The ingenious Hardinge "Auto-Raise" Thickener drive mechanism automatically lifts the entire scraping assembly upward when an overload occurs anywhere in the tank bottom. The double-spiral removes settled solids rapidly — prevents "pile-ups." Bulletin 31-D-13.

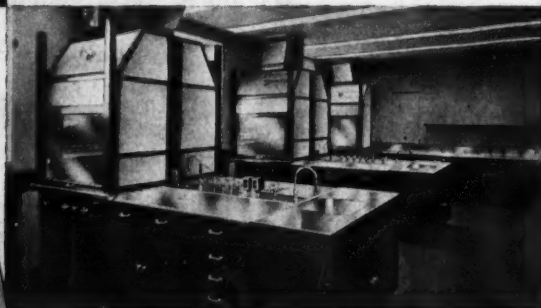


HARDINGE
COMPANY INCORPORATED
YORK, PENNSYLVANIA — 240 Arch St. • Main Office and Works
NEW YORK 17—122 E. 42nd St. • 205 W. Wacker Drive—CHICAGO 6
SAN FRANCISCO 11—24 California St. • 280 Bay St.—TORONTO 1

When inquiring check CP 7389 on handy form, pgs. 2-3

CHEMICAL PROCESSING APR

YOUR DREAM OF A LAB A REALITY AT METALAB



Send for the NEW Complete METALAB Catalog on Laboratory Furniture and Equipment

Dreaming of a new, beautiful Lab? Planning to add to your present equipment?

Let METALAB give you realistic advice on:

- How to plan your Lab for operating efficiency
- How interchangeable Sectional Units are used
- How to get the most for your Laboratory budget

Consult us for suggested layouts, specifications, and estimates—without obligation . . . Rush that problem to us today!

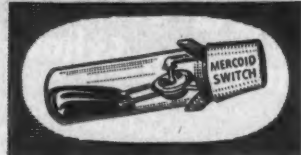
SECTIONAL LABORATORY FURNITURE and EQUIPMENT by METALAB Equipment Corp.

1535 Dean St., Brooklyn 13, N. Y.

When inquiring check CP 7386 on handy form, pgs. 2-3

MERCOID

MERCURY SWITCHES



Superior Quality and Workmanship

They are not affected by dust, dirt or corrosion and have many definite applications where open contacts are not suitable. Various types available. MERCOID is your guarantee of the best in mercury switches. Further information sent upon request.

MERCOID

SOLVES INDUSTRY'S AUTOMATIC CONTROL PROBLEMS



catalog upon request.

THE ONLY 100% MERCURY SWITCH EQUIPPED CONTROLS

Designed to automatically regulate electrically operated equipment in accordance with changes in temperature, pressure, vacuum, or fluid level.

If you have a problem on the automatic control of pressure, temperature, liquid level, mechanical operations, etc., it will pay you to consult Mercoid's engineering staff — always at your service.

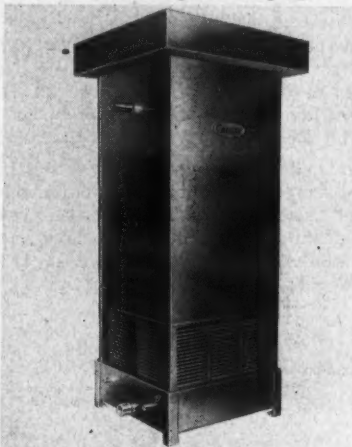
THE MERCOID CORPORATION

4227 West Belmont Avenue, Chicago 41, Illinois
MANUFACTURERS OF AUTOMATIC CONTROLS FOR HEATING, AIR CONDITIONING, REFRIGERATION AND NUMEROUS INDUSTRIAL APPLICATIONS. ALSO MERCOID BRAND MERCURY SWITCHES.

PROCESSING EQUIPMENT

needed is that for a small pump which is apart from the tower itself.

There are no wearing parts and the fill material over which the water sprays is of waterproof asphalt impregnated



Cooling tower has turbine drive

board. This is used instead of wood fill and avoids any tendency to water logging and consequent increase in weight.

Description: Four models are for 5, 7½, 10 and 15 hp air conditioning systems. Minimum piping connections are required. In self-contained unitary applications, piping for make-up water from city supply is greatly reduced in size as compared to direct city water connections.

Casing is hot-dipped to permit outdoor installation remote from the air conditioning equipment. Unit may also be installed inside a room apart from the conditioned area.

Source: Carrier Corp., Dept. CP, Syracuse, N. Y. . . or for more information check CP 7392 on handy form, pages 2 and 3.

Gives detailed information on 2-stage compressors

Two-stage, air-cooled compressors are featured in 16-page bulletin. Furnished as complete motor-driven units with 3 standard electric drives — built-in motor, direct-connected, and V-belt drive. May be equipped with gas or diesel engines. Available in 11 sizes — 15 to 125 hp — with piston displacements from 81 to 640 cfm at 125 psi max.

Bulletin includes selector chart, section drawings, parts photographs, and operating features. Bulletin No. A-56, issued by the Joy Manufacturing Company, Dept. CP, Henry W. Oliver Bldg., Pittsburgh 22, Pa. When inquiring specify CP 7393 on handy form, pages 2 and 3.



FRESH OUT OF AIR, SIR?

Call on R-C dual-ability to move air or gas in any quantities for industrial uses

When you have a job of handling gas or air, in quantities from 5 cfm to 100,000 cfm, Roots-Connersville will do it efficiently and economically. With many sizes and types, we can match blowers, exhausters and gas pumps closely to the job, to reduce first cost and operating costs.

R-C dual-ability offers you the exclusive, dual choice between Centrifugal and Rotary Positive designs. You can select single-stage or multi-stage units, from our standard lines, with flexibility as to drives and other accessories to meet your needs.

To aid in your specifications, our air-and-gas specialists are at your service. With nearly a century of experience behind them, they can help you solve almost any problem of handling air or gas.

ROOTS-CONNERSVILLE BLOWER CORPORATION

504 Richland Avenue, Connersville, Indiana



Type OIB Centrifugal Blower
in chemical plant. Capacity
19,600 cfm.



ROTARY

Three Rotary Positive
Blowers, operating on
vacuum service, in
western chemical plant.

Roots-Connersville

ONE OF THE DRESSER INDUSTRIES



When inquiring check CP 7394 on handy form, pages 2-3

Improved Mixing...

with this New CENTRIFUGAL MIXER

The "ENTOLETER" Mixer is now in use for the processing of such varied products as face powders, prepared mixes, soaps, insecticides, water paints and plastic powders. Further applications include the mixing of fertilizers, dyes, enamels and various dry or free-flowing substances used in the chemical industries.

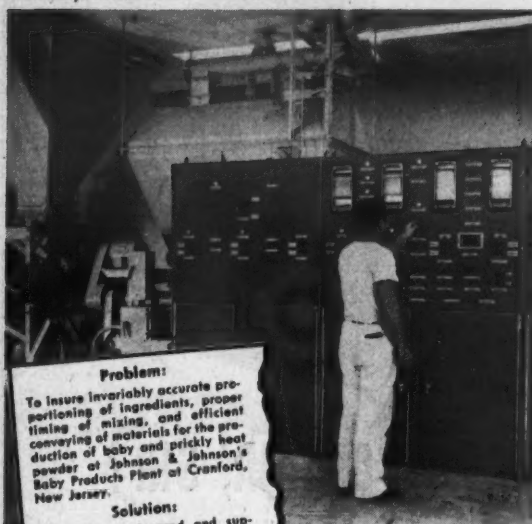
Bulletin describes "ENTOLETER" Mixer and shows 6 important advantages. Send for your copy now. ENTOLETER DIVISION, The Safety Car Heating & Lighting Co., Inc., 1183 Dixwell Ave., New Haven 4, Conn.



ENTOLETER

CENTRIFUGAL MACHINES

When inquiring check CP 7391 on handy form, pages 2-3



Problem:

To insure invariably accurate proportioning of ingredients, proper timing of mixing, and efficient conveying of materials for the production of baby and prickly heat powder at Johnson & Johnson's Baby Products Plant at Cranford, New Jersey.

Solution:

Richardson engineered and supplied automatic scales with a master control panel which coordinated the operation of the scales, the existing conveyors, mixers and sifters. Result: A consistently uniform product for the filling machines.

RICHARDSON PROPORTIONING EQUIPMENT WORKS FOR Johnson & Johnson

A product like baby powder or prickly heat powder *must be uniform*—always. High customer acceptance depends on a product whose texture and composition remains the same month after month, year after year—the result of accurate blending. Making a profit or taking a loss because of high operating cost depends on rapid and accurate blending. That's why Johnson & Johnson called in Richardson to engineer a feeder—weigher—mixer system that would be *fast—automatic—and ACCURATE*.

Richardson has specialized in engineering and building systems for materials handling by weight for more than half a century. Through these years a tremendous backlog of practical experience has been built up. As a result, we maintain... *and have proved time and again*... that there's no problem in pre-weighing, proportioning and mixing materials that can't be solved efficiently and economically... that the uniformity of any end product can be consistently maintained without need for heavy capital investment. Why not ask a Richardson engineer to survey your plant and submit suggestions? To do so puts you under no obligation and may pave the way to increased production and profits at lower operating costs.

Richardson Scale Co., Clifton, New Jersey. Feeder-Weigher Systems of All Types: Automatic Bulk Weighing Hopper Scales, Including Conveyor-Feed Types—Continuous Feeder-Weighers—Automatic Bagging Scales—Bag-Sewing Conveyors—Packers—Process Control Panels. Branch offices in: Atlanta • Boston • Detroit • Minneapolis • Cincinnati • Wichita • Montreal • Omaha • New York • Pittsburgh • San Francisco • Toronto • Buffalo • Chicago • Philadelphia • and Houston.

Richardson

MATERIALS HANDLING BY WEIGHT

When inquiring check CP 7395 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Mount redesigned angle gear in any position as original equipment or in spot use...

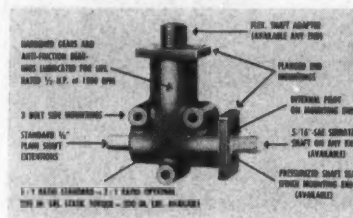
4-hole flange has internal pilot on both ends of housing; gear transmits 1/3 hp at 1800 rpm

Uses: Suitable for use in either manual or power operated systems involved in industrial operations. Designed for installations where required rating is to 250 inch pounds static torque or to transmit 1/3 hp at 1800 rpm for 2500 hours of service life. Special ratings will be considered upon receipt of load and duty cycle specifications.

Features: A recently adopted design feature is a rectangular 4-hole mounting flange with an internal pilot on both ends of the housing. The latter maintains concentricity and alignment with mating equipment when direct connected. Shafts are stainless steel. Housings are of aluminum alloy. Shaft seals are grease-retaining and dirt-excluding.

Description:

"ANGL gear" units are standardized right angle bevel gear drives which are suitable for use by manufacturers of original equipment. Also for "spot" applications on special tooling and similar requirements.



Angle gear provides universal mounting

New mounting arrangements are in addition to established 3-hole side mounting. Incorporation of mounting feature reduces models required from four to two. These are the R-300 and the R-310, 2-way and 3-way respectively.

Either is furnished with 1 to 1 ratio as standard and 2 to 1 ratio as optional feature.

Corrosion protection of components is in accordance with Specifications AN-P-61 and AN-QQ-A-696. Materials, tolerances and lubrication suitable for operation in the range from minus 65°F to plus 160°F. Higher temperature ratings are subject to test under specified operating load and duty cycle.

Source: Airborne Accessories Corporation, Dept. CP, 25 Montgomery St., Hillside 5, N.J. . . or for more information check CP 7396 on handy form, pages 2 and 3.

Codes cans, flat-top containers at speeds up to 600 per min., using minimum ink...

uses one pint per month on average production runs, without waste or spillage

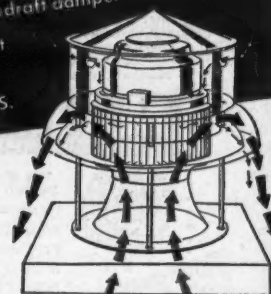
Uses: For continuous coding of cans and other flat-top containers on the conveyor line, marking any number of digits, in single or multiple rows, at speeds up to 600 per minute.

Features: Ink flows only when containers are being marked, avoiding spillage and waste. Total ink-consumption on production-runs averages about 1 pt. per month, as contrasted to 5 gals. per month for conventional devices, manufacturer reports. Ink dries immediately, unaffected by moisture on containers, and marking speed is usually limited only by other equipment.

Description: Movement of containers along conveyor

NEW GALLAHER Air-Van Power Exhauster

- Motor out of the air stream.
- Completely weatherproof and self contained—requires no penthouse.
- Positive acting squirrel-cage fan —no backdraft damper required.
- Low installation cost direct connected.
- CERTIFIED RATINGS.



Pat. 2188741
Pat. Pend.

Safely Exhaust Moisture and Corrosive Fumes

Safe! Positive! With motor out of airstream operating efficient squirrel cage fan, you safely remove explosive and corrosive fumes without danger of motor damage. Motor hood is under negative pressure of fresh air passing through hood to prevent formation of explosive concentrations. Capacities are 100 - 12,000 CFM handling static pressures to 1 3/4".

For full information contact your Gallaher representative or write The Gallaher Co., 4106 Dodge Street, Omaha.

The GALLAHER Company
Omaha, Nebr. Owatonna, Minn.

When inquiring check CP 7397 on handy form, pgs. 2-3

The miracle of AUTOMATIC LUBRICATION for NORDSTROM VALVES



AN energizable LUBRICANT

Keeps Nordstrom valves in 100% perfect lubricated condition. Saves man-hours. Self-feeding. Fills voids instantly. Prevents leakage. World's first compressible and expandable lubricant. Keeps valves pressurized without frequent turning of lubricant screw.

Self-Sealing
Self-Acting
Quick action
Tried - Tested

ROCKWELL
Hypermatic
LUBRICANT
Patents applied for

First and only genuine automatic valve lubricant
Ask for Bulletin

NORDSTROM VALVE DIVISION — ROCKWELL MANUFACTURING CO.
400 North Lexington Avenue Pittsburgh 8, Pennsylvania

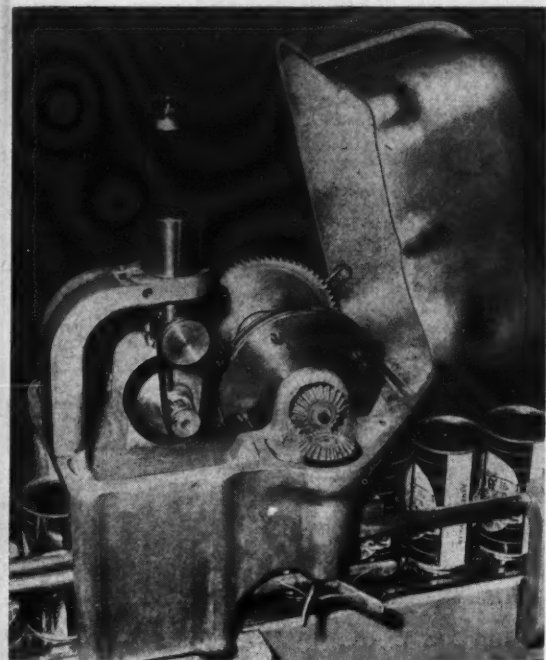
When inquiring check CP 7398 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

line actuates marker without outside power. Containers rotate a pair of starwheels which, in turn, actuate the stamping wheel and ink-metering pump.

Ink is fed to marking-stamps via pump and metering device, and transferred to inking-roll. Spreader-wheel distributes ink evenly before it is picked up by stamps. Installation is made at any convenient point on conveyor-line,



Continuous coder, with top opened

usually requiring not more than 1 hr. Unit is mounted on line by two flanges on each side, with bolts through conveyor frame. Live rubber shock-mounts afford automatic adjustment of height for uniform printing.

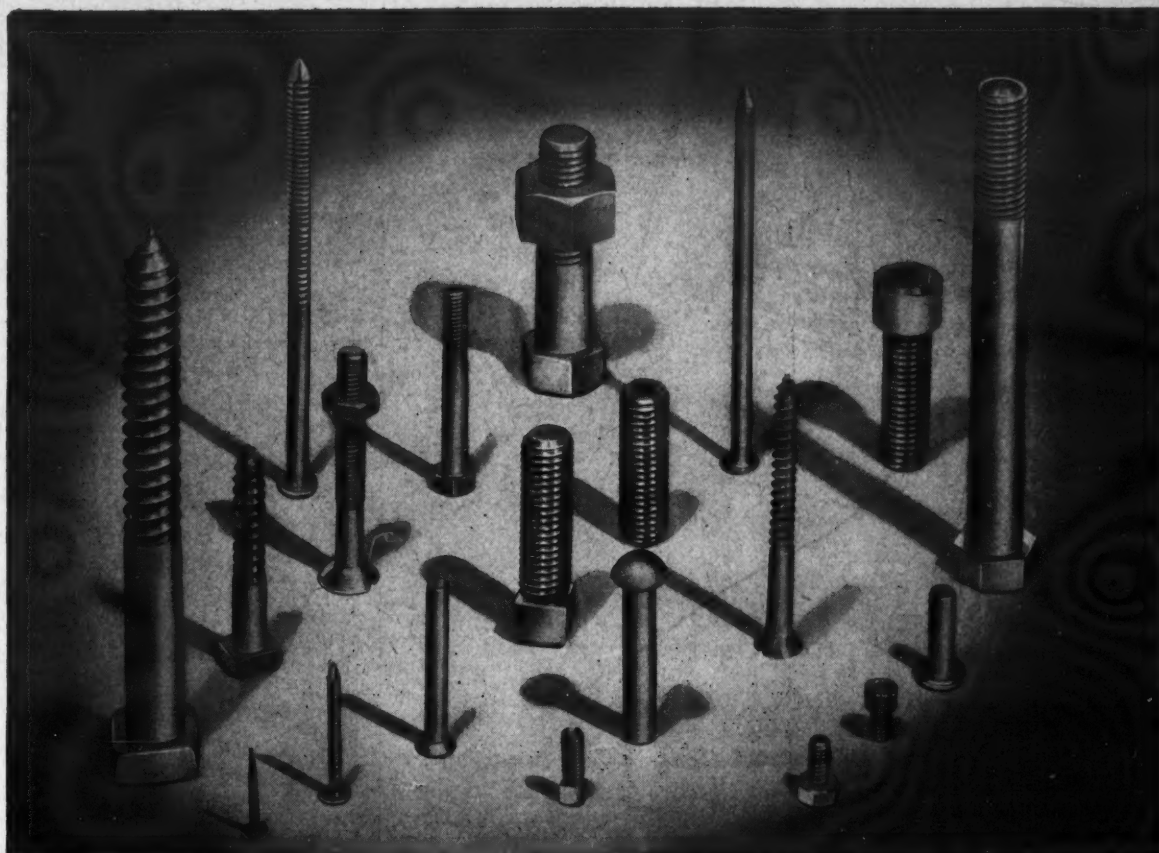
A large, aluminum hinged cover permits easy lubrication, type changes and ink adjustments.

Source: Bruce Engineering Corporation, Dept. CP, 417 Montgomery St., San Francisco, Calif. . . or for more information check CP 7399 on handy form, pages 2 and 3.

Report tells of research on wollastonite — a mineral

Wollastonite, a mineral occurring in substantial deposits in the state of New York, has been quarried and beneficiated on pilot-plant scale under an OTS research project with the New York State College of Ceramics. Mineral has already demonstrated its usefulness as a component for thermal insulation; agricultural liming; mineral wool; etc. Investigations point toward possible applications in ceramics, chemicals, paints, paper, rubber, welding flux, wall tile, pottery glaze, etc.

One-hundred-page report — including charts, drawings, and photographs — represents a 2-year study of the mineral. Report deals with physical and chemical properties; and the winning, milling and beneficiation of the material. A proposed plant flow sheet is included. For report PB 97826, entitled "Wollastonite, An Industrial Mineral", remit \$2.50 direct to Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C.



20 Ways To Stop Trouble Before It Starts!

WE WANT TO HEAR ABOUT YOUR TOUGHEST FASTENING PROBLEM. WE THINK WE HAVE THE ANSWER IN MONEL



How A Textile Company Put Monel Fastenings To Work

Problem: Piece goods, dripping with a sulfuric acid solution, were being transported in wooden carts. Maintenance of the carts was a constant chore, because the acid attacked the nails holding them together. Continual moisture also weakened the nails' grip, causing them to "back out."

Solution: Both problems were ended by using the Monel fastening shown at left (Monel "Anchorfast" nail, made by Independent Nail and Packing Co., Bridgewater, Mass.). The Monel nails remained unaffected by the acid; the annular grooves around their shanks made them hold like screws.

For most jobs ordinary fastenings are adequate.

But there are plenty of jobs where you need extra protection against rust...corrosion...shock...over-stressing...vibration...heat...cold.

For those jobs you need the protection of **Monel**®.

Just look at the "extras" you get from Monel fastenings.

They resist corrosion by caustics, most acids, salt water. They're 100% rustproof.

Even their mechanical properties are superior. For, compared to the free-cutting steel used in ordinary

fastenings, Monel is 20% stronger...30% more ductile...40% tougher.

And if extreme temperatures must be endured, you'll find Monel fastenings safe at high heat or sub-zero cold.

How many places in your plant or product do you want (and need) the extra advantages of Monel fastenings? Remember, *any* fastening you need is available in longer-lasting Monel.

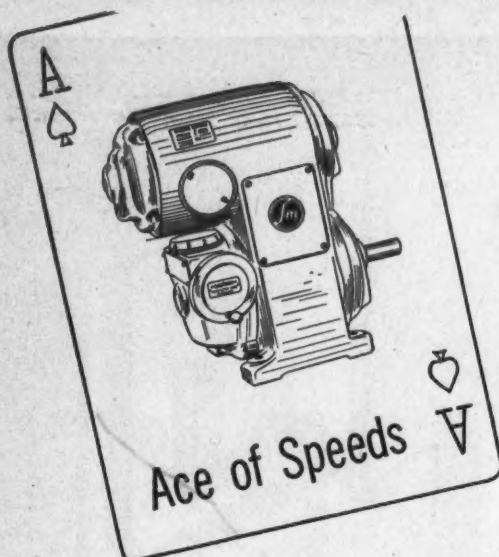
TEST A MONEL FASTENING, FREE! Write to Bob Johnson of Inco. Tell him the type and size you need. He'll send a sample...plus the address of your nearest supplier.



THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.
*Reg. U. S. Pat. Off.

Monel* Fastenings are stronger . . tougher . . safer

When inquiring check CP 7400 on handy form, pgs. 2-3



Hit the jackpot
with Sterling
Speed-Trol
Electric
Power
Drives

STERLING
ELECTRIC MOTORS

PLANTS: NEW YORK 51, LOS ANGELES 22, HAMILTON, CANADA—OFFICES IN PRINCIPAL CITIES

Write for Bulletin

SPEED-TROL (Variable Speed) • SLO-SPEED (Geared) • KLOSED (Normal Speed)

When inquiring check CP 7401 on handy form, pgs. 2-3



**"IT'S CHEAPER TO
CUT THAN TO
GRIND"**

CUT!

**TAYLOR-STILES CUTTERS
SAVED \$3,912 EACH YEAR**

A concern needed a machine to reduce sheets of rubber for further processing at first considered a hammer mill requiring a 150 HP motor for operation.

Two Taylor-Stiles Cutters were installed, using 10 HP motors — 20 HP for the two machines, which included a 5 HP reserve.

At current electrical rates, this difference of 130 HP made their power bills \$3,912 less each year than if they had installed the hammer mill.

We will be glad to work out the amount of saving you can make by using our cutters in your stock reduction. You may be surprised how big they are.

TAYLOR, STILES & CO.

Specialists in industrial cutting since 1863.

20 Bridge St.

Riegelsville, N. J.

When inquiring check CP 7402 on handy form, pgs. 2-3

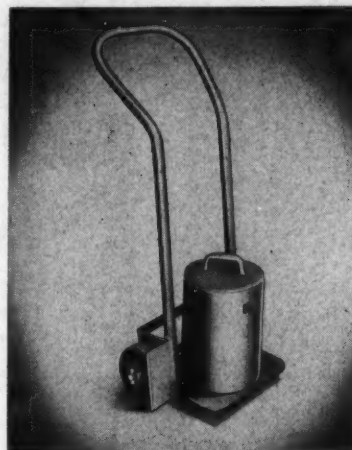
PROCESSING EQUIPMENT

**Shields radioactive
materials during
transfer . . .**

sturdy rubber-rimmed wheels
ease moving heavy shield

Uses: Mobile safety shield for shielding strongly radioactive materials being transferred around laboratory or from one building to another.

Features: Sturdy construction of bearings and wheel system facilitates



Mobile safety shield

transportation of heavy shield. Rubber-rimmed wheels protect floors.

Description: Iron shield is 9" diameter, 12" high, with 3" wall thickness. Storage chamber is 3" diameter, 6" deep, and covered by a heavy plug with attached handle. RCL Mark 3 Model 35.

Source: Radiation Counter Laboratories, Inc., Dept. CP, 1844 W. 21st St., Chicago 8, Ill. . . . or for more information check CP 7403 on handy form, pages 2 and 3.

**Converts 1/2 hp looms
to 1 hp with minimum
modification . . .**

motors of 3/4 to 2 hp furnished for old or new looms

Uses: Loom motors for high-speed weaving. "Hour glass" construction permits replacing older motors of lower hp capacity, and converting group-driven looms to individual motor drives without extensive modification.

Line includes a "three point suspension" mounting, with identical electrical and mechanical construction, for installation on Crompton & Knowles looms.

Features: Manufacturer reports that comprehensive tests to discover most satisfactory loom-motor design have

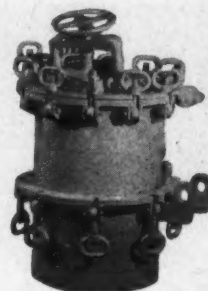
LENAPE MANWAY NECKS AND NOZZLES TYPE SR

• In ever increasing numbers, designers and users of process vessels in many fields—food, beverage, paint, pharmaceutical, oil, etc.—are turning to Lenape for preferred variations in standard manway necks and nozzles.

Construction employs standard Type R Necks or Nozzles with covers, hinge or davit, and toggle bolts.

Special bronze trim for marine use, babbitt joint for spark proof service, view or sample ports, etc. are provided when specified.

Send for special Bulletin 4-82, price schedule M48B and pending complete new catalog 9-49.



Top Unit: Standard SR Neck with Quick-opening sample port. Lower Unit: SR Neck frame only, with toggle bolts and special hinge for flame barrier screen lid installed by purchaser.



LENAPE HYDRAULIC PRESSING & FORGING CO.
DEPT. 100 WEST CHESTER, PA.

SEE MAN PRODUCTS

When inquiring check CP 7404 on handy form, pgs. 2-3

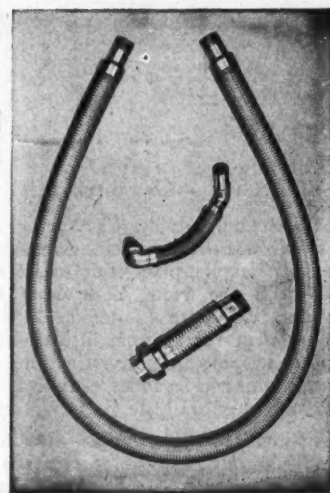
YOUR BEST BUY IS BY



CONVEYOR LINES

**FOR CORROSIVE
LIQUIDS & GASES**

Bendix Seamless Flexible Bronze Metal Hose assures you greater flexibility—longer service life. In addition, it is engineered to your requirements in stainless steel, monel, SAE 1010 carbon steel and other special alloys.



**MADE BY ECLIPSE-PIONEER DIVISION
Bendix Aviation Corporation • Teterboro, N. J.**

When inquiring check CP 7405 on handy form, pgs. 2-3

CHEMICAL PROCESSING



STRAINERS AND FILTERS

AVAILABLE IN ALL TYPES AND SIZES

A longer lasting, accurately made filter or strainer increases your profits at every application. The skilled craftsmanship and selected quality materials used in the manufacture of Cleveland Wire Screen is your yardstick for discriminating buying. Custom designed strainer elements are produced in small or large production runs from Chrome Nickel or Copper Alloys. Write for Strainer and Filter Bulletin No. 7.

A CLEVELAND WIRE SCREEN FOR EVERY PURPOSE

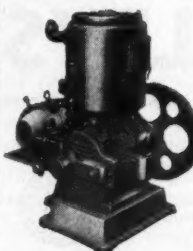
THE CLEVELAND WIRE CLOTH & MFG. CO.
3574 E. 78 STREET • CLEVELAND 5, OHIO

When inquiring check CP 7406 on handy form, pgs. 2-3

Get Greater Efficiency in High Vacuum Processes



Type SS — Single Stage Rotary Pump for vacuum to 5 mm. on tight system, for dry or semi-wet work. Capacities — 6 to 375 c.f.m.



Type RP — Single Stage Rotary Piston Pump for vacuum to 10 microns; for dry or wet operations. Capacities — 17 to 845 c.f.m.

BEACH-RUSS High Vacuum ROTARY PUMPS

- Faster Pump Down
- High Mechanical Efficiency
- Lowest Pressures
- Longer Service

For food processing operations such as concentration, extraction, distillation, drying; for packing and sealing of cans and bottles; for feeding bottle caps, tags, envelopes, tea bags, etc. to filling machines and for labeling machines, Beach-Russ High Vacuum Pumps assure faster, more efficient operation in every way.

Let the Catalog tell how their superior features of design, construction and operation can help you improve your processing.

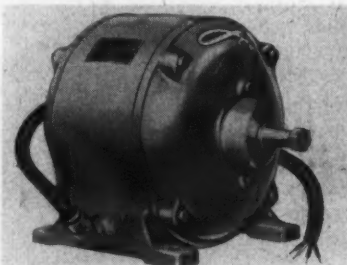
BEACH-RUSS CO.
46 Church St., New York 7, N. Y.

When inquiring check CP 7407 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

resulted in a grease-lubricated ball bearing motor having no external flywheels, but with special stator and rotor design for medium to high slip.

This is said to reduce cyclic power peaks and minimize or eliminate regeneration. Leveling of power input curve materially improves power fac-



216 frame, rated 1 hp at 1735 rpm

tor and overall efficiency, resulting in lower cost per yd. of cloth woven.

Waste-packed sleeve bearings, with their need for frequent oiling, are eliminated, and increased picking speeds are made possible by increased hp. Design of large diam. rotor allows more complete utilization of kinetic energy, permitting motor to drive loom throughout entire picking cycle, thus eliminating losses and heat of regeneration.

More uniform beat-up, dampened vibration, and reduced whip of crankshaft during reverse movements of the lay are accomplished by relatively high slip design.

Description: Ratings of $\frac{3}{4}$ to 2 hp. Furnished in 214 and 216 frames for old-style looms, and in NEMA 224Y and 225Y frames for installation on looms of modern design. Heavy-duty factory-lubricated ball bearings are locked securely in place to provide ample end-thrust capacity.

Source: The Louis Allis Co., Dept. CP, Milwaukee 7, Wis. . . or for more information check CP 7408 on handy form, pages 2 and 3.

Catalogs safety equipment

Individual protective equipment and industrial safety devices fill 46-page illustrated catalog. Includes respiratory devices, eye protection, hats, gloves, carboy pumps, drum pumps. Other safety equipment includes types for use in industries, mines, utilities, etc. Price list is given.

"Everything in Safety", issued by General Scientific Equipment Co., Dept. CP, 2700 W. Huntingdon St., Philadelphia 32, Pa. When inquiring specify CP 7409 on handy form, pages 2 and 3.

PROBLEM: To produce a mechanical seal capable of withstanding corrosive chemicals . . . grt . . . high shaft speeds . . . highly volatile fluids under extreme pressures.



SOLUTION:

Self-lubricating seals of Morganite . . . Immune to chemical attack . . . abrasives . . . mechanically strong . . . provide perfect sealing free from warping or gumming.



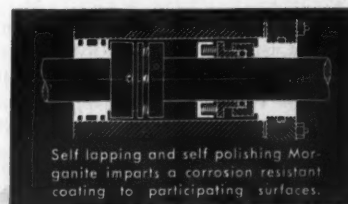
MORGANITE SELF-LUBRICATING CARBON SEALS

In continuous service where pressures and shaft speeds are extremely high, Morganite Seals have proven highly efficient. They are recommended for use in pumps, agitators, mixers and similar equipment handling liquids including corrosives. Where maintenance is difficult due to inaccessibility, the self-lubricating feature is especially valuable. Costly repairs and lengthy shut downs due to seal failures are eliminated.

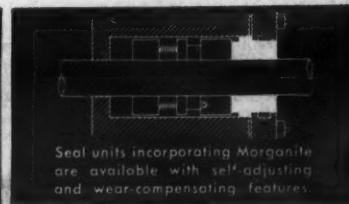


Additional data on Morganite will be found in Sweet's File for Product Designers. For competent engineering help on specific problems consult a Morganite sales engineer.

REGISTERED **Morganite** INCORPORATED
TRADE MARK LONG ISLAND CITY 1, NEW YORK



Self lapping and self polishing Morganite imparts a corrosion resistant coating to participating surfaces.



Seal units incorporating Morganite are available with self-adjusting and wear-compensating features.

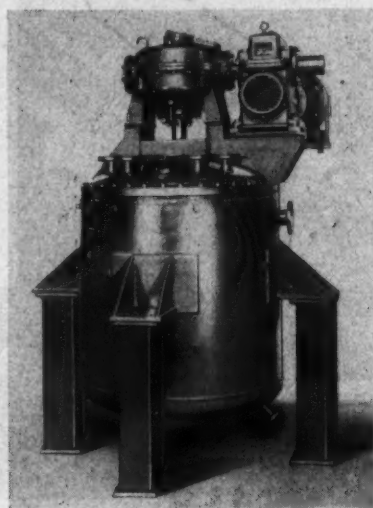
Manufacturers of Morganite Carbon Brushes for all motor and generator applications, and Morganite Carbon Piles.

When inquiring check CP 7410 on handy form, pgs. 2-3

Greater Unit Capacity with BUFLOVAK-DOPP PROCESSING EQUIPMENT

For the profitable and better processing of many Chemical, Food, Pharmaceutical and Grease Products.

Available in many types, materials of construction, and sizes, to meet specific requirements.



This 250-gal. Stainless Steel Jacketed Kettle processes shaving cream.

Designed to perform the important function of thorough mixing with the minimum power consumption, BUFLOVAK-DOPP Kettles process a better, more uniform product, at lower production cost.

Heating surfaces can be kept continuously free from accumulated material by special scraping agitators.

Safe, quiet, and dependable operation is insured by completely enclosed drive units equipped with roller bearings. Cut bevel gears operate in bath of oil.

Greater unit capacity . . . an increase in heat transfer . . . substantial savings in power . . . thorough mixing . . . and the complete discharge of processed batches, are benefits resulting from exclusive features in the design and construction of BUFLOVAK-DOPP Kettles.

The BUFLOVAK Research and Testing Laboratory is equipped to process a small quantity of your material to determine the type equipment and accessories that will give you the most efficient results.

BUFLOVAK EQUIPMENT

Division of Blaw-Knox Company

1645 Fillmore Ave.

Buffalo 11, N.Y.

When inquiring check CP 7411 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Accumulated sediment can be removed from gate valve while on line . . .

cover plate at bottom swings out; plug hole in bonnet provides access for blowing out solids

Uses: For control of such materials as paper pulp, viscous or heavy liquids, slurries, sludges, granular solids, gases containing high percentage of solid particles.

Features: Valves may quickly be cleaned of accumulated solids without removing from line. Heavy, rigid blade has knife edge for shearing any solid particles in the way when valve is being closed.

Description: Cover plate is provided at bottom of sediment chamber, held in place by through bolts and eye bolts. By removing through bolts and loosening eye bolts, cover plate can be swung out of the way for dropping out the accumulation in the chamber. High pressure air, steam or water line attached to plug hole in bonnet will quickly clean out entire valve.

Valves have cast iron body with steel blade. Where desired, units can be supplied with bronze body and brass blade or stainless steel body and blade.

Stem moves through packing gland to control mechanism. Careful machining of blade and blade recess reduces leakage to a minimum. Tests for water leakage at 60 psi show maximum loss of only 1/2 gpm.

Valves with lever handle control are available in following pipe sizes: 4, 6, 8, 10, 12". Units for rising stem hand wheel control, chain wheel control and air cylinder control: 4, 6, 8, 10, 12, 14, 18, 20, 24".

Source: W. S. Rockwell Co., Dept. CP, 200 Eliot St., Fairfield, Conn. . . . or for more information check CP 7412 on handy form, pages 2 and 3.

Polyethylene-lined textile bags protect contents from wetting and contamination . . .

combine durability of textile bags with resistance of polyethylene to moisture and many materials

Uses: Shipping of materials that deteriorate ordinary bags; also for products which must be protected from moisture and contamination.

Features: Bags combine the resistance of polyethylene plastic with the durability of textile bags. The adhesive employed for sticking the polyethylene to the fabric bag is a waterproofing agent itself. Therefore, the laminated material is even more moisture-resistant than the polyethylene alone.

Description: Finding an adhesive that would be good for laminating polyethylene to fabric was the main problem in producing polyethylene-lined waterproof textile bags. Two were found, one being an asphalt compound and the other a colorless adhesive.



Gate valves can be cleaned without removing from line

ALLMETAL'S

First Quality STAINLESS STEEL FASTENERS



Help You Combat Corrosion!

All types and sizes of stainless fasteners—machine, set, self-tapping, wood screws, nuts, bolts, pins, washers, rivets stocked for immediate shipment. Prompt delivery on various types of Phillips Recessed Head Screws and specials, too.—Priced right!

Write for catalog 49U

MANUFACTURERS SINCE 1929

ALLMETAL

Screw Products Co., Inc.

33 GREENE STREET, NEW YORK 11, N. Y.

When inquiring check CP 7413 on handy form, pgs. 2-3

Multiply your machine services AT LOW COST!

Wide V-belt series. Ratios to 3:1. Infinitely variable, slow or fast.



LOVEJOY VARIABLE SPEED PULLEYS

For duties fractional to 8 h.p. Available from stock. Easily installed with equipment old or new. Compact. Simple. Ruggedly built. Time saver! Money savers!

Ask for complete catalog.



LOVEJOY FLEXIBLE COUPLING CO.

5072 W. Lake St., Chicago 44, Ill.

Also Mfrs. Lovejoy Flexible Couplings, and Lovejoy Universal Joints.

When inquiring check CP 7414 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Properties of polyethylene film are well-known to industry. It is highly waterproof and moisture-resistant, resistant to oil and grease, and inert to most chemicals, particularly acids and alkalis. The film will stretch considerably without rupturing, and retains its stretch and pliability at very low temperatures.

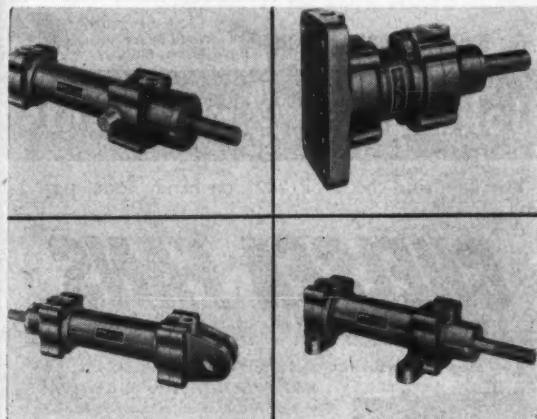
Source: Bags are made by Bemis Bro. Bag Co., Dept. CP, 408 Pine St., St. Louis 2, Mo. . . or for more information check CP 7415 on handy form, pages 2 and 3.

Multiple pipe connections and air vents are features of oil-hydraulic cylinders . . .

furnished in 12 standard bores and mountings for use with pumps, controls, etc., of hydraulic systems

Uses: Hydraulic (oil) cylinders for industrial hydraulic systems. Also for use in conjunction with manufacturer's pumps and controls.

Features: Versatile, incorporating multiple piping connection positions, universal mounting positions and multiple air vents. Other features include improved cylinder



Representative types of mountings include (top left to right) collar-type trunnion and head-end flange, also (bottom left to right) clevis and foot

head seals, self-adjusting packings and adjustable hydraulic cushions.

Design follows practice recommended by JIC Hydraulic Standards for Industrial Equipment.

Descriptions: Furnished in 12 standard bores, from 1 to 8", and 12 standard mounting arrangements, with innumerable potential combinations. Nearly all models can be optionally equipped with either standard or heavy-duty rods. Vickers Series LA.

Source: Vickers, Inc., Dept. CP, 1582 Oakman Blvd., Detroit, Mich. . . or for more information check CP 7416 on handy form, pages 2 and 3.

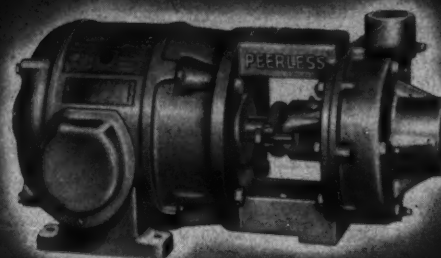
Illustrates and specifies magnetic separators

Four-page, multi-color bulletin specifies, illustrates, and describes line of magnetic separators. Includes air-gap types of chutes, grate types for hopper bottoms and floor openings, and portable types for conveyor belts and picking tables. Bulletin M-3-A, issued by The Bauer Bros. Co., Dept. CP, 1719 Sheridan Ave., Springfield, O. When inquiring specify CP 7417 on handy form, pages 2 and 3.

DURABLE • ECONOMICAL • GENERAL UTILITY PUMPS FOR ALL ORDINARY LIQUID PUMPING SERVICES

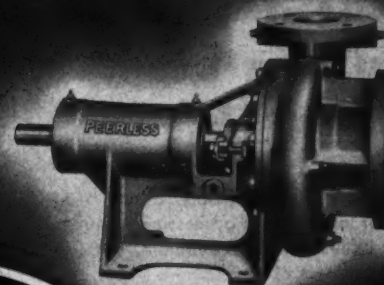
THE PEERLESS *Fluidyne* LINE

CLOSE-COUPLED TYPE Integral H. P.



Type PE MOTOR SIZE: 1-40 H.P.
CAPACITY: Up to 5500 gpm
HEADS: Up to 270 Feet

BELTED OR DIRECT-CONNECTED TYPE Integral H. P.



Type PB MOTOR SIZE: 1-40 H.P.
CAPACITY: Up to 5500 gpm
HEADS: Up to 270 Feet



COMPLETE RANGE OF SIZES FROM 1/4 TO 40 H.P.

CAPACITIES: UP TO 5500 G.P.M. • HEADS: UP TO 270 FEET

Want compactness? Want efficiency? Want durability? Want economy? You can have them all by using pumps in the versatile and complete line of Peerless Fluidyne general-purpose pumps. Versatile, because they can be applied to a host of diversified services calling for transferring of liquids such as water for air conditioning or cooling and refrigeration systems, mild alkaline solutions, booster service, process uses and many others. Complete, because they offer widest range of sizes and models. The Type PE Fluidyne pump, a close-coupled bracket-type pump is electric drive, available from 1/4 to 40 h.p. It is direct-connected to standard NEMA electric motors. The Type PB offers the same wide h.p. range but differs from the PE in that it is built to receive standard V or flat belt pulleys for engine drive, or it can be mounted on a common base with an electric motor and driven by a flexible coupling.

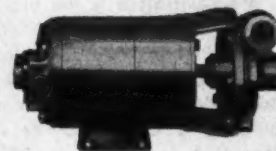
Both Type PE and Type PB Fluidyne pumps are single stage, end suction, centrifugal design. Simplicity and quality

and ruggedness are inherent in their design. All parts are easily accessible. Close attention to hydraulic characteristics has resulted in pumping units of high efficiency. Disassembly and assembly for inspection or maintenance is rapid.

Fluidyne pumps operate with unparalleled efficiency in any position—vertical, horizontal or intermediate angle. All parts of exacting Peerless manufacture found only in highest quality pumps. Evidence of their high quality is found in features such as high strength cast bronze stream-flow impellers, replaceable bronze wear rings on pump case, oversize packing, drain pocket, ball bearings (PB unit), precision alloy steel shafts.

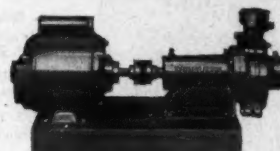
You can probably visualize a score of uses for these dependable, economical pumps. Write today for bulletins describing and illustrating Peerless Fluidyne pumps in the size and type you require.

FRACTIONAL HORSEPOWER CLOSE-COUPLED TYPE PE



1/4 to 1 h.p. • 3450 rpm • 60 cycle
Capacity: To 50 gpm • Heads: To 90 Ft.

DIRECT OR BELTED TYPE PB FRACTIONAL HP COMMON BASE



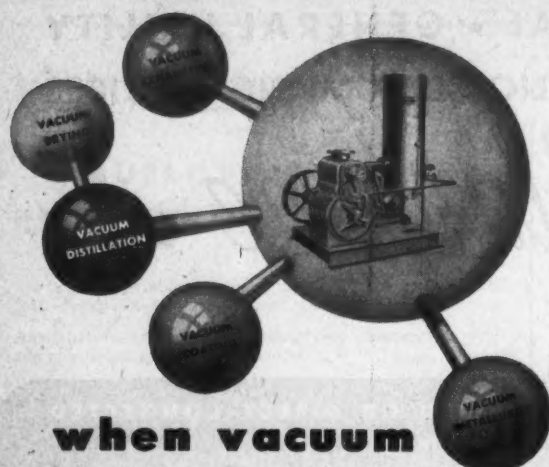
1/4 to 1 h.p. • 3450 rpm • 60 cycle
Capacity: To 50 gpm • Heads: To 90 Ft.



PEERLESS PUMP DIVISION FOOD MACHINERY AND CHEMICAL CORPORATION

Factories: Los Angeles, California, and Indianapolis, Indiana
Offices: New York, Atlanta, Fresno, Los Angeles, Chicago, St. Louis, Phoenix, Dallas, Plainview and Lubbock, Texas.

When inquiring check CP 7418 on handy form, pgs. 2-3



when vacuum is vital you can count on KINNEY

Kinney High Vacuum Pumps are at work in all phases of low pressure processing — in the production of television tubes, titanium, penicillin, electrical condensers, coated camera lenses, dehydrated foods, and scores of other products. Their dependability and high pumping speed have helped bring vacuum out of the laboratory and onto the production line. Kinney Pumps are establishing important records both for length of service and economy of operation. They are virtually a "production must" whenever processes require fast pump down to low absolute pressures.

Performance is the big reason why Kinney Pumps are so often specified "when vacuum is vital". Perhaps they can help speed YOUR processes or improve YOUR products. Write for Bulletin V-45, describing the complete line of Single Stage and Compound Vacuum Pumps. Kinney Manufacturing Company, 3573 Washington St., Boston 30, Mass. Representatives in New York, Chicago, Cleveland, Houston, New Orleans, Philadelphia, Los Angeles, San Francisco, Seattle.

Making
old things
BETTER
Making
New things
POSSIBLE

FOREIGN REPRESENTATIVES
GENERAL ENGINEERING CO.
(RADCLIFFE) LTD., Station Works, Bury
Road, Radcliffe, Lancashire, England
HORROCKS, ROXBURGH PTY., LTD.
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W. S. THOMAS & TAYLOR PTY., LTD.
Johannesburg, Union of South Africa
NOVELECTRIC, LTD.
Zurich, Switzerland

KINNEY Vacuum Pumps

When inquiring check CP 7419 on handy form, pgs. 2-3

Page 116

PROCESSING EQUIPMENT

Offers comprehensive treatise on flow measurement

"Principles and Practice of Flow Meter Engineering" is the title of 416-page handbook offered as an authoritative treatise on all phases of flow engineering. A seventh edition, new section gives design details, operating instructions, and tables for measuring flow through open channels by means of weirs and flumes.

Information is included for calculating an orifice, flow nozzle, Venturi tube, Pitot tube, and even a pipe elbow used for flow measurement. Common pressure tap locations are discussed, and data given to correct for odd tap locations. Liquids, steam or other vapors, and gas are handled in separate sections.

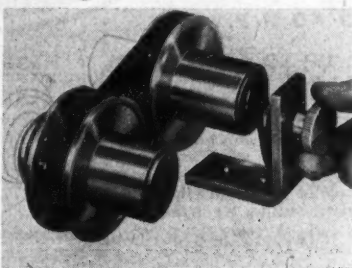
Also included are equations and curves for calculating throttling orifices used at critical pressure drops, measurements of fluid flow in metric units, tables of corrections for barometric pressures and pressure multipliers up to 5000 psig, and pages of examples of typical calculations in flow meter engineering. For your copy of handbook, remit \$7 direct to The Foxboro Company, Dept. CP, Foxboro, Mass. When inquiring specify CP 7420 on handy form, pages 2 and 3.

Widen variations of speeds between fixed-center shafts with dual sheaves . . .

two variable pitch sheaves with one V-belt give ratios as high as 7:1; load capacities to 7½ hp

Uses: Provide a simple, efficient yet low-cost means of producing wide speed variations between fixed-center shafts through use of standard V-belts. Sheaves are designed for load capacities up to 7½ hp and wide range of speeds.

Features: As these 3, 4, 5, 6 and 7" single-groove sizes are each available in two types, spring-loaded and controllable, it is possible to combine small driving sheaves with larger driven sheaves for low speed requirements.



Sheaves and control stud

Also, this permits use of large driving sheaves with smaller driven sizes for high-speed ranges. Many combinations are possible. Installation of sheaves is easy, and flexibility of control is a great advantage. Sheaves can be mounted on fixed shaft centers, either widely spaced or close together, eliminating need for sliding motor bases, movable jackshafts, or special, wide, high-cost belts. Sheaves are adjustable while running. Belt is always aligned.

Description: Spring-loaded variable-pitch driving sheave is usually mounted on motor shaft, and the controllable pitch sheave, of either the same or of a different diameter, is mounted on driven shaft. Control knob and bracket assembly furnished is then secured to the machine base. Standard V-belt snaps into place to complete drive.

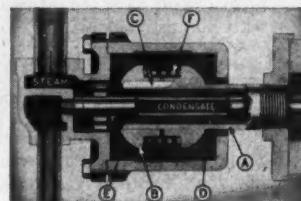
As the faces of the controllable sheave are forced closer together, the pitch diameter at which belt rides in V-groove is increased. This pulls belt deeper into groove of spring-loaded sheave, spreading its faces apart, producing a smaller pitch diameter. Thus the pitch diameter of one sheave is decreased as the other pitch diameter is increased. This

TO GET STEAM IN— WE CAN HELP OUT!

For admitting steam or any liquids to rotating machine parts the Johnson Joint has introduced an entirely new concept of efficient, maintenance-slashing operation. Applications today range from penicillin to paper machines, from rubber mills to rotary wing aircraft. In contrast with old style stuffing boxes Johnson Joints are completely packless, self-lubricating, self-adjusting, self-aligning. Be sure you have all the facts on hand

Write for newly published catalog

Nipple (A) is connected to roll or drum. Collar (B) is keyed to nipple at (C), but fits loosely so pressure can fill housing as sealing force. Seal ring (D) and bearing ring (E) are of carbon graphite—eliminate packing and oiling. Spring (F) is for initial seating only.



The JOHNSON CORPORATION 826 Wood Street Three Rivers, Mich.

Johnson Rotary Pressure Joints

When inquiring check CP 7421 on handy form, pgs. 2-3

CHELSEA FANS FOR INDUSTRIAL AND COMMERCIAL NEEDS

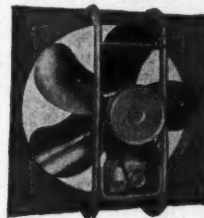
— step up production and plant efficiency, prevent

HOT WEATHER SHUT-DOWNS!

The efficient, economical way to banish employee fatigue due to smoke, fumes, steam and heat. CHELSEA fans provide adequate circulation of cool, clean, fresh air — with up to a complete change of air per minute! Remember — a CHELSEA installation can save you time and money.

Heavy Duty, Belt-Driven TYPE IND

This powerful industrial fan is scientifically designed to move huge volumes of air in factories, foundries, mines, institutions, hotels, schools, etc. Sizes 24" to 60", with air deliveries from 3500 to 40,500 CFM.



ALL TYPES • SIZES • CAPACITIES

Belt Driven Penthouse Fan TYPE PH — a completely packaged unit, all-steel housing and automatic aluminum louvers. Fits any installation — sizes from 24" to 60"; 5500 to 40,500 CFM.

Duct Booster Fan TYPE DB — Belt driven, for paint booths, removal of fumes, and duct installations. Sizes from 16" to 42"; 2960 to 26,400 CFM.

Automatic Shutters, Horizontal TYPE LW — Sturdy, counter-balanced, single section construction. Full 90° opening. Sizes 10" to 60".

Belt Driven, Pedestal Mancooler TYPE MC — For use where large volume, on-the-spot air circulation is required — in shops, stores, offices, etc.



WRITE FOR NEW CATALOG AND PRICE SHEET
Full information on the most complete line for 50—engineering data, installation details, etc. Address Dept. D.

CHELSEA FAN & BLOWER CO., INC.
1206 GROVE ST., IRVINGTON, N. J.

When inquiring check CP 7422 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

multiplies the speed variation of one sheave by the speed variation of the other. The result is unusually wide total speed variations as high as 7:1.

A new 8" size, with double grooves, is designed for larger hp requirements and cannot be combined with smaller single groove sizes.

Full rated hp capacity is delivered to driven shaft at all speeds in the single belt combination sheaves. The 8" double-groove sheaves transmit 7½ hp at maximum speed and 4 hp at minimum speed.

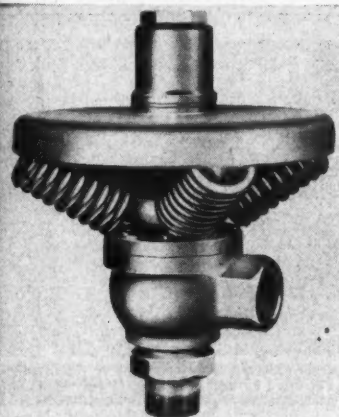
Source: Variable speed combination sheaves are built by Speed Selector, Inc., Dept. CP, 118 Noble Court, Cleveland 13, Ohio . . . or for more information check CP 7423 on handy form, pages 2 and 3.

Relieve pressures instantly with "snap-open, snap-shut" 2" valve . . .

abrasive sludges handled efficiently; working pressure range is 750-2500 psi

Uses: For any pressure relief service from 750 to 2500 psi, being especially suited for applications involving abrasive sludges.

Features: Accomplishes instantaneous pressure relief at maximum volume by means of a detention wedge and sleeve, plus controlled thrust restraining springs. Valve snaps open for instantaneous relief at full volume; pressure less than overload holds it open until a pre-determined pressure drop causes it to snap shut and restore circulation.



Valve with thrust restraining springs

Valve design permits quick changing of pressure settings. Within normal range, adjustments may be made by simply changing detention wedges, which requires only a few minutes.

Description: All critical elements of the valve are either made from corrosion-resistant materials or are given anti-corrosion treatment. No fluid comes in contact

with control elements. All fluid passages are designed to provide a resistance to flow. Made in 2" size only.

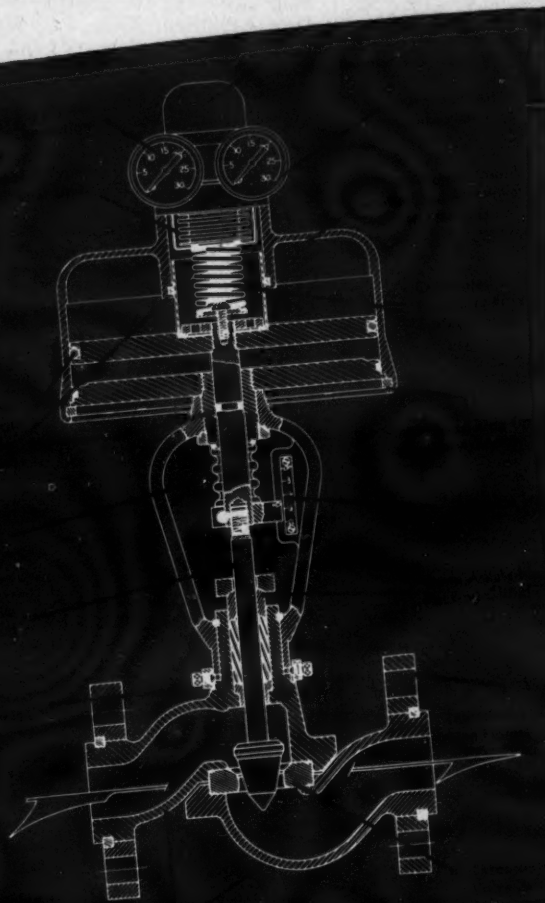
Source: Model 112 relief valve is made by Kinzbach Tool Co., Dept. CP, Houston, Texas . . . or for more information check CP 7424 on handy form, pages 2 and 3.

Effect of fatigue allowance on fair day's work

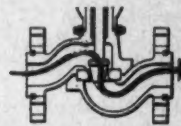
"The Fatigue Allowance in Industrial Time Study" is the title of a booklet containing industrial engineering opinions concerning fatigue allowance and its effect upon workloads, fair day's work, man power, and incentive assignments. Includes 66 pages, 65 quotations, and 85 references. Available from Matthew A. Payne, Dept. CP, 13777 Euclid Ave., East Cleveland 12, O. When inquiring specify CP 7425 on handy form, pages 2 and 3.

4 REASONS FOR THE Phenomenal Acceptance

OF ANNIN DOMOTOR VALVES IN SEVERE AUTOMATIC CONTROL SERVICE



POSITIVE AUTOMATIC OPERATION. Powerful Domotor unit with built-in valve positioner and sealed-in piston . . . replacing conventional spring and diaphragm with externally attached positioner . . . is not limited to lower operating pressures or short valve travel. Simple, practical design provides a stability and precision of operation not found in other control valves.



PROVEN SINGLE SEAT VALVE BODY DESIGN. Valve seat is clamped in position between separable body valves permitting a smooth, clean, non-turbulent flow passage that effectively handles slurries, sludges, and viscous fluids at high pressures and temperatures. Pressure drop is minimized. Unique construction allows economical manufacture in a wide range of alloys.



DEPENDABLE SERVICE UNDER ADVERSE CONDITIONS. Domotor assembly actuating the one-piece stem and valve plug within the simplified valve body provides the surest combination for dependable service. Development of the Annico Seat Seal permits use of Teflon and other wear-resistant seating surfaces to insure bubble-tight shut-off, even under the most corrosive conditions.



LOW MAINTENANCE COSTS. On the job, in the line, replacement of valve plug, ring seat and other vital parts is rapidly completed. Grinding-in operations are eliminated due to inherent seat alignment. Interchangeable line flanges permit use of one valve anywhere in plant regardless of line pressure, further reducing inventory and operating costs.

PARTIAL LIST OF SATISFIED USERS OF ANNIN DOMOTOR VALVES

Cities Service Refining Co.
Gulf Oil Corp.
Humble Oil & Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Shell Oil Co.
Sinclair Refining Co.
Standard Oil Co.
Superior Oil Co.
Texas Oil Co.

Carbide & Carbon Chemicals
Celanese Corporation of America
Corn Products Refining Company
The Dow Chemical Company
E. I. du Pont de Nemours & Co.
Ethyl Corporation
Jefferson Chemical
Mathieson Alkali
Monsanto Chemical Co.
Pittsburg Coal & Chemical



SEND FOR YOUR FREE COPY OF THIS BULLETIN . . . describing the features of this outstanding line of Valves. Write now!



THE ANNIN COMPANY

3500 Union Pacific Avenue, Los Angeles 33, California

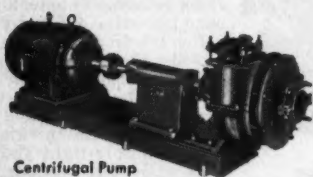
When inquiring check CP 7426 on handy form, pgs. 2-3



You may think your plant is fully covered, but what protection do you have against corrosion... the arch enemy of all chemical processing equipment!

Never forget, a breakdown in your pump or exhauster can cost you plenty in production dollars! But not if their "contact" parts are made with General Ceramics Chemical Stoneware or Porcelain... the truly corrosion-resistant materials that can withstand the action of all acids except, of course HF and strong hot caustics. Highly resistant to thermal shock and exceptionally strong, they assure permanent, trouble-free installations.

For complete information on General Ceramics Stoneware Pumps write for Bulletin 211... for additional information on General Ceramics Stoneware Exhausters, Bulletin RA. Why not let a General Ceramics engineer show you how Chemical Stoneware equipment (Ceraware) Porcelain (Cerawite) can solve your corrosion problems. Write for Bulletins CHER-3 and POR.



Centrifugal Pump



Exhauster

YOU SAVE 3 WAYS WITH GENERAL CERAMICS' SSS*

Savings through uniformity of construction... no misfits.
Savings on shipping costs... one shipment for everything.
Savings on paper work, accounting... one order, one bill.



General Ceramics AND STEATITE CORP.

CHEMICAL EQUIPMENT DIVISION

38 Crews Mill Road

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Sales Offices in: BUFFALO, CHICAGO, LOS ANGELES, PITTSBURGH, PORTLAND, ORE., SAN FRANCISCO, SEATTLE, TACOMA, MONTREAL, TORONTO, VANCOUVER, B. C.

Our Insulator Division Manufactures Steatites, Porcelains,

*Single Source of Supply. Titanates, Ferrites

6365

When inquiring check CP 7427 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Self-lubricating packings prevent scoring

Line of self-lubricating packings — for service where non-scoring and non-contaminating performance is demanded — is illustrated, described, and specified in 4-page bulletin. Covers principles of packing design and performance. Includes types for all-around service on air, steam, and water; for solvent, alkali, and acid service in pumps, etc.; and types for valve stems, small shafts and rods.

Bulletin No. LP-10, issued by the Greene, Tweed & Co., Dept. CP, North Wales, Pa. When inquiring specify CP 7428 on handy form, pages 2 and 3.

Bricklined gas-fired incinerator burns small amounts of combustible waste...

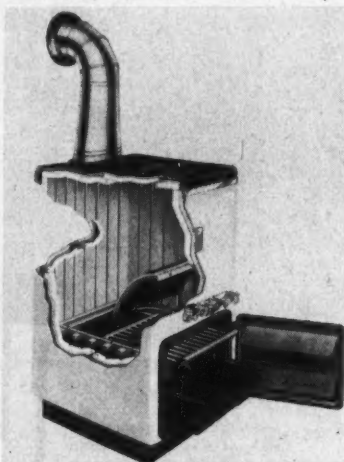
reduces recurring accumulations of lab trash, garbage or broken packages to sterile ash

Uses: For reducing combustible wastes to sterile, 1 or 2% residual ash, including laboratory testing wastes and papers, food residues from plant lunchrooms, broken packages and spilled products from packaging departments, waste materials from plant hospitals, similar applications where it is necessary to rid plant premises of small amounts of re-occurring burnable wastes.

For handling up to 3 bu of garbage (wet type) combustible wastes per hr. Capacity for trash (dry type) combustible wastes is considerably higher.

Operation can be continuous unless high-heat readily-flammable materials are charged exclusively, in which case the unit should be allowed some cooling-off between successive charges.

Features: Quickly attains high temperature of 1200 to 1800°F, where it burns odorlessly without soot or smoke.



Odorlessly incinerates combustible waste

Space requirements of 22 x 24 x 41" high are frequently much less than that formerly occupied by garbage and trash cans. Grate pulls forward to permit removal, via ash compartment, of cans as large as 1 gallon.

Constructional features include 2" high-temperature refractory lining of firebox; pilot burner for trash ignition; main burner, with variable time-o-stat shut-off, for garbage consumption; air-cooled sides and base. Also complete gaseous controls (bottle or line gas) including pilot and main burners, pressure reducer, thermostatic flame-failure shut-off to both main and pilot burners, time-o-stat.

Description: Gas burners, with aid of ceramic wall, raise temperature quickly to 1200-1800°F. Brickwork catalyzes completeness of gaseous secondary combustion reaction, which doubles in rate for every 180°F. Trash is automatically ignited by adjustable flame of pilot burner.



Use Headed and Threaded Fasteners for Economy and Reliability



When inquiring check CP 7429 on handy form, pgs. 2-3



REMOVING COCOA SHELLS WITH VACUUM

Dozens of large ovens used by a large manufacturer of chocolate products accumulate heavy deposits of cocoa shells continuously. The Spencer Gulper Tool removes all shells and dust while the ovens are still warm. The refuse is deposited in closed containers two floors below. This company has used Spencer in a dozen different kinds of buildings for more than ten years and reports a maintenance cost of less than a dollar per machine per year.



When inquiring check CP 7430 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Garbage is burned by adjusting the variable time-o-stat to the time cycle desired for the particular charge—not over 55 minutes in any event.

Incinerators are direct and/or chimney-fed, in various types. Unit illustrated is connected by running a gas line to the controls, and a flue to the closest stack. Welded or flanged pipe can be run directly upward through roof, where structural conditions permit.

Fire-chest is 3 layers: an outer heavy-gauge steel with baked-on enamel coating, a middle heat-distributing steel shell, and an inner 2"-thick high-temperature refractory. They are separated by 2 air spaces, and cooling air passes from the base upward, arriving at the stack pre-heated for dilution of stack gases and completion of oxidation.

Grates, ashpit door, grate holder and drying shelves are heavy grey cast iron. Ashpit is louvered to eliminate fly ash and to lead all ash into ashpan. Removable ashpan has carrying-handles. Controls are furnished assembled for attachment.

Source: Brulé Incinerator Corporation, Dept. CP, 407 S. Dearborn St., Chicago, Ill. . . . or for more information check CP 7431 on handy form, pages 2 and 3.

Liquid-recirculating temperature control unit holds fluid within 1/2°F . . .

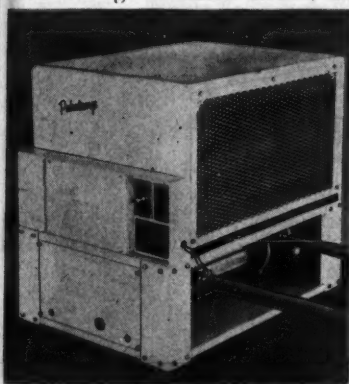
requires only one electrical connection and two non-corrosive plumbing connections

Uses: Liquid-recirculating temperature-control unit for automatically holding fluid temperature within a range as narrow as plus-minus 1/2°F. Models can be modified for direct tempering and circulation of a critical fluid.

Features: Since the tempering liquid is force-circulated through a closed circuit, extremely small temperature changes are corrected.

This also avoids setting up of temperature zones within the critical fluid.

All thermostatic and electrical controls conveniently located, eliminating hazards of electrical connections on solution tanks. No complicated mixing valves or manual controls.

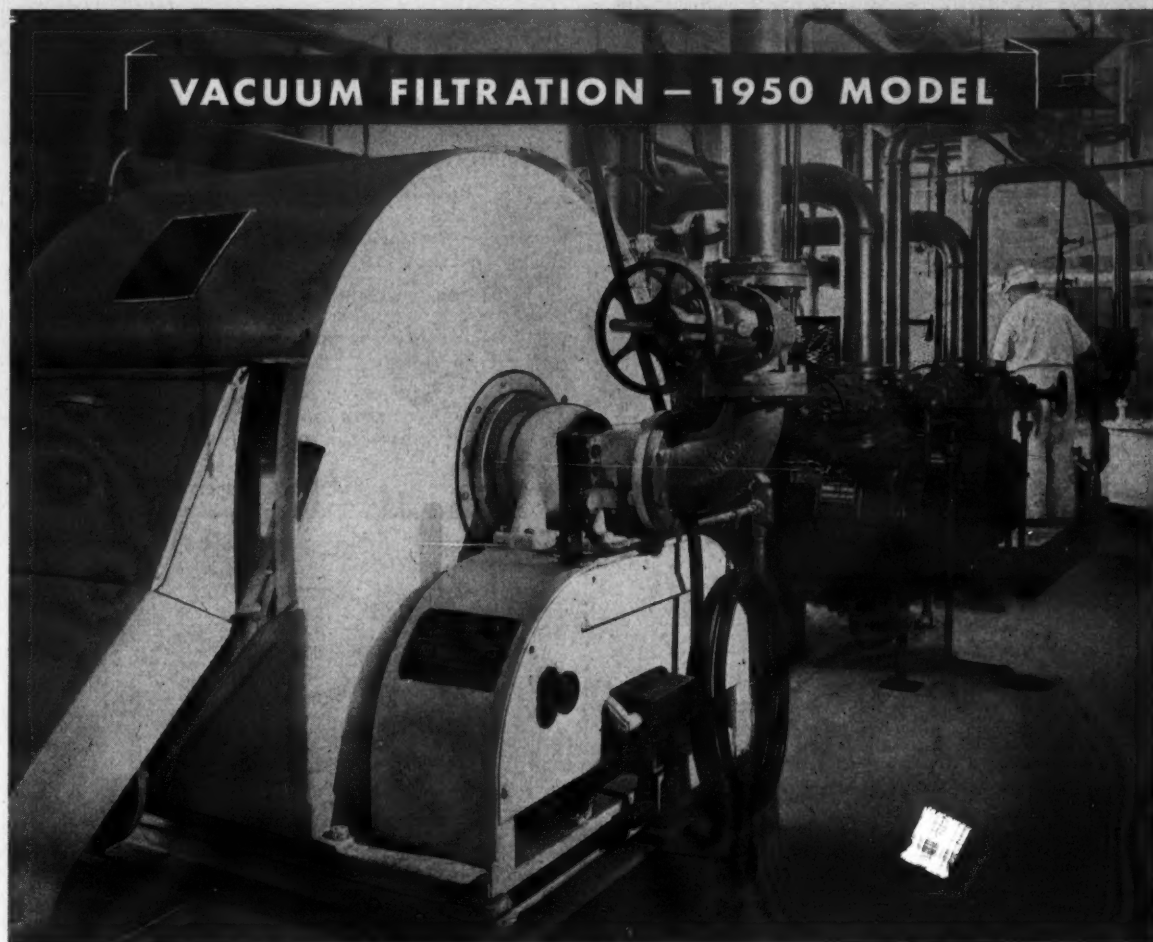


Liquid-recirculating temperature-control unit

Only one electrical connection and two simple, non-corrosive plumbing connections are required.

Description: "Pakotemp" circulates a tempering liquid rapidly through a jacket or tempering panels surrounding the critical fluid. Radically different stainless steel heat exchanger, incorporated in unit, automatically provides heat or refrigeration, as required, to hold temperature of the critical fluid within predetermined limits.

Source: Pako Corporation, Dept. CP, 1010 Lyndale Ave., N., Minneapolis, Minn. . . . or for more information check CP 7432 on handy form, pages 2 and 3.



VACUUM FILTRATION — 1950 MODEL

The BIRD-YOUNG THIN Cake Pneumatic Discharge, Continuous, Vacuum FILTER

Before you buy vacuum filters for *any* application—slow filtering or free—look into the only filter of new and different basic design that's been put on the market in years—truly a 1950 Model—the BIRD-YOUNG FILTER.

Thin cake filtration means:

- Higher capacity, constantly maintained
- Drier filter cakes
- More thorough washing — exceedingly sharp separation of wash liquors

For complete information about the application and performance of the Bird-Young Filter, get in touch with

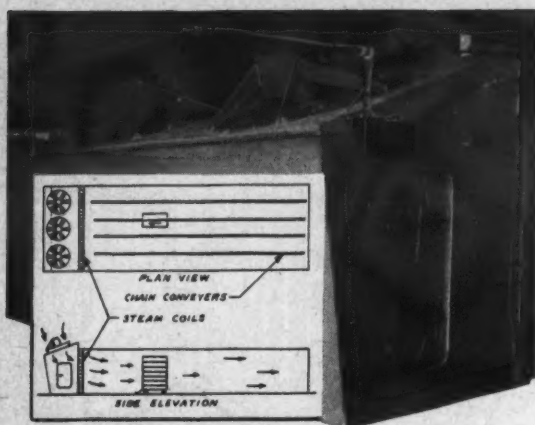
BIRD MACHINE COMPANY • South Walpole, Massachusetts

THE BIRD-YOUNG FILTER

designed, constructed and applied by the builders of the

BIRD CONTINUOUS CENTRIFUGAL FILTER

When inquiring check CP 7433 on handy form, pages 2-3



A fish story you can believe

A trio of Propellair fans made a fish story for a New England sardine packer more intriguing than that of the "big one that got away."

These fans, mounted in a drying tunnel, effectively dry fish at 80° F. by maintaining velocities at 1400 feet per minute.

Prior to improvement by Propellair engineers, this process required temperatures as high as 125° because velocity was only 400 feet per minute.

The greater velocity produced by Propellair fans speeds the work, makes drying more even, reduces fuel costs. Since the original installation, this drying method has become a standard in the industry.

BLADES HAVE AERODYNAMIC DESIGN

The same airfoil principle built into an aircraft wing is engineered into Propellair fan blades. Both sides of the blade, from tip to hub, move air.

TYPES FOR EVERY PURPOSE

A variety of Propellairs is available—for roofs, stacks, ducts, windows, walls; on pedestals or stand mounts. Sizes to 60", capacities to 85,000 CFM.

Propellair engineers will survey any job and supply complete ventilation plans without obligation. Or write for complete details on type fans you need.

PROPELLAIR
DIVISION OF ROBBINS & MYERS, INC.
SPRINGFIELD 96 OHIO

When inquiring check CP 7434 on handy form, pgs. 2-3

Page 120

PROCESSING EQUIPMENT

No special atmospheres needed when furnace has lithium vaporizing chamber . . .

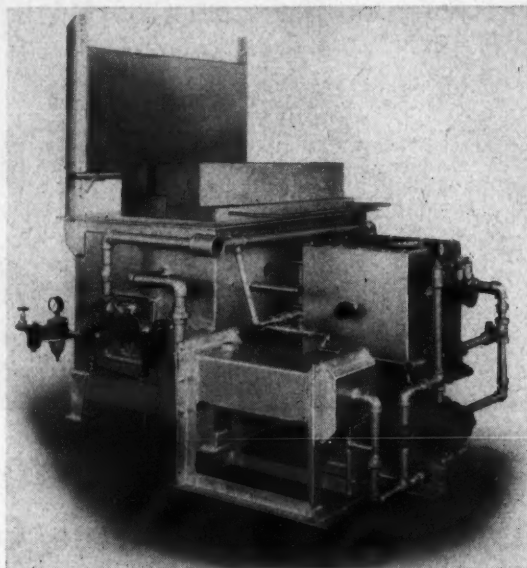
lithium atmosphere slot forge furnace protects against scaling to 2400° F.

Uses: Provides protection up to 2400° F. against scaling during heating of steel for forging or pressing, annealing or brazing ends or sections of bars, band heating, etc., without the need for special atmospheres.

Slight coating of lithium imparted to work during these heating operations further prevents secondary oxidation to 2200° F. in transferring work from furnace to forging hammer, press or upsetter, or while cooling after hot working.

Features: Costs only a few cents per hour of operation for the lithium compound and the fuel required to vaporize it. In large furnaces the cost is as low as 5c per ton of forgings.

Description: Construction and operating principles of the furnace are simple. Lithium vaporizing chamber, built



Forge furnace shell is welded steel plate

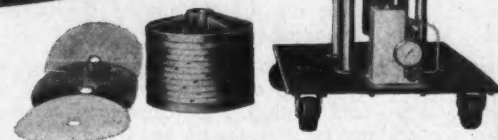
integrally with the furnace, is a refractory-lined steel shell provided with gas burners or electric heaters. Chamber contains a tubular vaporizer in which a cartridge of lithium compound is vaporized by its own gas or electric heating equipment.

Products of combustion, which go through a pre-cooler and condenser, are used as the carrier gas. These are recirculated through the lithium vaporizing tube, picking up vaporized lithium for introduction into furnace.

Heavy duty furnace contains a shell of welded steel plate, mounted on sturdy legs and lined with 4½" of hard burned brick, backed up by sufficient refractory insulating brick. Automatically controlled oil or gas burners fire directly into combustion chamber, producing high thermal heads. Heating is rapid with minimum heat loss through the walls.

Charging side of the furnace is not only fully shielded, but contains a perforated pipe to provide an air curtain to protect the worker against heat radiation and discomfort. Furnaces are available in single and double slot types. Slot sizes of the former vary from 18" in width x 12" depth and 27" height to 64" in width x 20" depth and

SHRIVER Enclosed Type Horizontal Plate FILTER



- No Evaporation—No Contamination
- Filters from Inside Cartridge
- Tank Not Under Pressure
- High Flow Rates. Uniform, Stable, Firm Cake
- Simple Hydraulic Closure
- Intermittent or Continuous

Uses any filter media, any filter aids. Easy to operate; and clean. Only clear filtrate in tank. Made of any metal; in convenient sizes. Write for Bulletin.

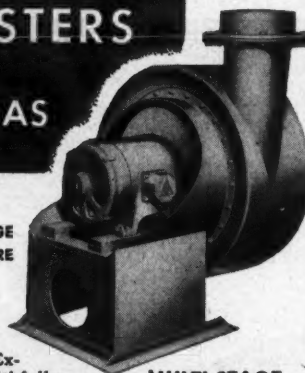
T. SHRIVER & COMPANY, Inc.

846 Hamilton St.

Harrison, N. J.

When inquiring check CP 7435 on handy form, pgs. 2-3

BLOWERS and EXHAUSTERS for AIR and GAS



**CENTRIFUGAL TYPE
SINGLE AND MULTI-STAGE
½ LB. TO 7 LBS. PRESSURE
½ HP. TO 250 HP.**

Since back in the '90's, these trustworthy Blowers and Exhausters have been faithfully serving American industry—for agitation and aeration—for combustion—for cooling and ventilating—for gas and acid production—for conveying—and numerous other applications having various pressure and vacuum requirements.

If you have a problem in handling air or gases of various densities, temperatures or chemical compositions, write today for latest bulletin, B-5, on Lamson Blowers and Exhausters.

LAMSON CORPORATION
BLOWER DIVISION
445 LAMSON ST. SYRACUSE 1, N. Y.

When inquiring check CP 7436 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

40" height. Double slot furnaces are made in 6 slot sizes from 18" wide x 12" deep x 27" high to 48" wide x 20" deep and 40" high.

In both types of furnaces, the refractory tiles are adjustable to alter the working opening and slot depth for pieces of varying size or for band heating.

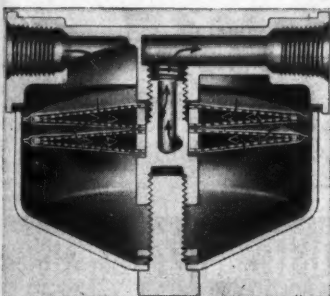
Source: Furnaces are built by The Lithium Co., Dept. CP, 111 Sylvan Ave., Bewary, N. J. . . . or for more information check CP 7437 on handy form, pages 2 and 3.

Solids as tiny as 1 micron filtered in small space . . .

V-shaped filter discs also purify gases or separate oil from air, water from fuel oil, etc.

Uses: For filtering solids, down to 1 or 2 microns, from liquids. For separating water from fuel oils, gasoline, etc. Also for purifying gases and separating oil from air or water.

Applications include gasoline filters for all types of gasoline engines, fuel oil filters for diesel and jet engines or industrial oil burners, air filters for compressors, engines, and compressed air lines.



V-shaped horizontal filter discs are bolted into cover

Features: Large effective filtering area within minimum space. Wide range of porosity and degree of filtration. Filters are easily removed.

Description: A series of V-shaped horizontal filter discs are bolted into cover of filter housing. Each disc consists of two perforated

leaves, separated at the center by a perforated flange. The leaves are covered with various filter media such as synthetic rayon non-woven cloth, resin-treated filter paper or woven wire cloth. High-pressure cast aluminum housing. All contact parts are rust-proofed. Sizes and capacities for every requirement can be mass-produced.

Source: Sparkler Mfg. Company, Dept. CP, Mundelein, Ill. . . . or for more information check CP 7438 on handy form, pages 2 and 3.

Versatile extraction process for oleaginous seeds and nuts

A two-page flow sheet occupies the inside of 4-page leaflet describing oil extraction process for certain oleaginous materials. Illustrates movement of materials from raw material storage, through preliminary preparation, pre-pressing, solvent extraction and storage and shipping of products. Installation is flexible; it can handle, with little change, seeds from which best results are obtained by mechanical pressing alone, which require pre-pressing and solvent extraction, or which are treated best by solvent extraction alone.

"Anderson 'Exsolex' Process," issued by The V. D. Anderson Company, Dept. CP, 1935 W. 96th St., Cleveland 2, Ohio. When inquiring specify CP 7439 on handy form, pages 2 and 3.

CUT COSTS 50% on corrosion-resistant pipe

Yes, pay as little as *half* what you've been paying—get corrosion-resistant Alcoa Aluminum Pipe. Pay less for installation, too—Alcoa Pipe weighs just one-third as much as ordinary pipe. It's easier to handle, easier to install or move.

Alcoa Aluminum 63S Pipe is highly resistant to corrosion by sulfur compounds; safely carries many chemicals, petroleum products, foods, commodities. The product won't hurt the pipe and the pipe won't hurt the product. In fact, Alcoa Pipe is often used where maintenance of color and purity are of utmost importance.

Alcoa Aluminum Pipe is seamless and comes in 1/8" to 12" standard pipe sizes. Easy to join by familiar methods and with standard fittings and flanges available from nationally-known manufacturers. For your nearest supplier, call your local Alcoa Sales Office (branches in 55 cities) or write ALUMINUM COMPANY OF AMERICA, 1977D Gulf Bldg., Pittsburgh 19, Pa.

FOR LOCAL SOURCE OF ALCOA ALUMINUM PIPE AND OTHER ALCOA PRODUCTS, LOOK UNDER "ALUMINUM" IN YOUR CLASSIFIED TELEPHONE DIRECTORY



ALCOA

PIPE



INGOT • SHEET & PLATE • SHAPES, ROLLER & EXTRUDED • WIRE • ROD • BAR • TUBING • PIPE • SAND, DIE & PERMANENT MOLD CASTINGS • FORGINGS • IMPACT EXTRUSIONS
ELECTRICAL CONDUCTORS • SCREW MACHINE PRODUCTS • FABRICATED PRODUCTS • FASTENERS • FOIL • ALUMINUM PIGMENTS • MAGNESIUM PRODUCTS

When inquiring check CP 7440 on handy form, pgs. 2-3

LAWRENCE ANNOUNCES A New Type of Self-Priming Pump

(PATENT APPLIED FOR)

This self-priming centrifugal pump:

- Primes faster than any other pump because it acts as a positive air pump during priming
- After priming, operates as a regular centrifugal pump without any recirculation or loss of efficiency
- Requires no valves for its operation
- Has no close clearances and no pockets for material to lodge in—can be used for sludge, slurries, and abrasive mixtures
- Can be furnished in any alloy and for any capacity and head

For further details and performance data, write to:



LAWRENCE MACHINE & PUMP CORPORATION

377 MARKET STREET LAWRENCE, MASS.

When inquiring check CP 7441 on handy form, pgs. 2-3



PROCESSING EQUIPMENT

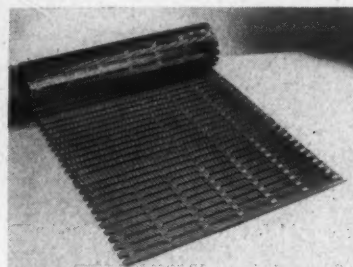
Ribbed runner matting
will cut accurately
to fit recesses . . .

provides good aeration, drainage

Uses: Counter-tread matting for use as a runner mat.

Features: Permits perfect recess work, with easy cutting and accurate fit. Ample aeration and drainage.

Description: $\frac{3}{8}$ " thick. Three slot



Design facilitates accurate cutting

constructions include closed, open, or open on end of slots only. "Traffic-Tred."

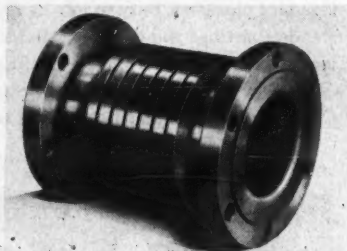
Source: American Mat Corporation, Dept. CP, 1798 Adams St., Toledo 2, Ohio . . . or for more information check CP 7443 on handy form, pages 2 and 3.

Gases, liquids at 1000 psi
conveyed despite motion-
control problems . . .

control-rings of expansion joints
are not bolted in place

Uses: Expansion joints for the 1000 psi working-pressure range. For use wherever gases or fluids must be conveyed under high pressures and between relatively movable parts.

Line includes units for absorbing radial, offset and axial motion. Manufacturer points out that 1000 psi is



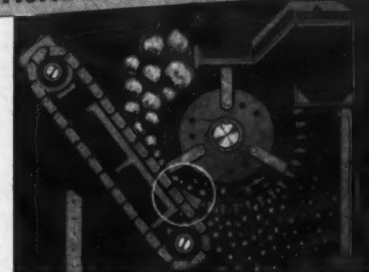
Control-rings have intimate relationship with pressure-carrier

merely a base standard, and that units have been designed for pressures well in excess of that figure.

If stainless steel is used, upper temperature limit is 1400°F, and this limit can be exceeded with use of special

THE ONE and ONLY NON-CLOG

The Tried and Proven **DIXIE HAMMERMILL**



*U. S. Patents Granted & Pending

Your Assurance of Greater Production at Less Cost

If you have wet, sticky material to crush, if you have difficulty in reaching and maintaining desired production, if you have any crushing problem at all, it will pay you to take advantage of this vastly improved crushing principle.

Dixie Non-Clog Hammermills are made in sizes from 24" up to 72" diam.

WRITE TODAY FOR COMPLETE DETAILS

DIXIE

MACHINERY MFG. CO.
4219 GOODFELLOW BLVD. ST. LOUIS 20, MO.

When inquiring check CP 7444 on handy form, pgs. 2-3

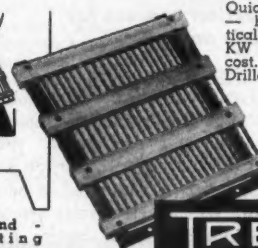
Use "FOLDED-and-FORMED" HEATING ELEMENTS Two Ways

CUSTOM-BUILT JACKETS . . .

Insulated jackets of "Folded-and-Formed" elements, made to your specifications — any shape or size — for kettles, furnaces, melting pots and similar units.



STANDARD RACKS for Spot Heating in Your Equipment



Quickly, easily installed — horizontally or vertically — to give 1.5 KW to 300 KW at low cost. Size 12" x 12". Drilled for mounting.

FIVE YEAR GUARANTEE at temperatures to 750° F. or 1350° F.

"FOLDED - and - FORMED" Heating Elements are famous for their amazing heating efficiency, freedom from maintenance and long life! Send for Bulletin 80-T and 72-TC.

TRENT INC

Electrically Heated Industrial Equipment
235 LEVERINGTON AVE. PHILA 37, PA.

When inquiring check CP 7445 on handy form, pgs. 2-3

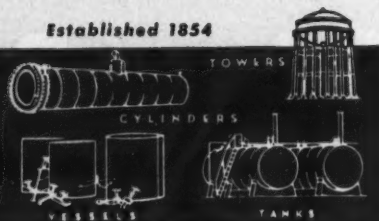
CHEMICAL PROCESSING

COLE ALUMINUM TANKS

R.D. COLE
MANUFACTURING CO.
NEWNAN, GA.

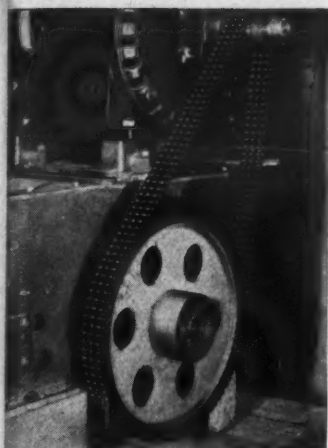
We have available stock sizes from 9,500 to 22,900 gallons for pressure storage, and tanks of 99.6% pure aluminum for hydrogen peroxide from 5000 to 11,150 gallons. "Cole" can furnish tanks made of steel, aluminum and stainless steel — built in accordance with ASME Code — to meet all insurance requirements. We invite your inquiries for high pressure storage tanks, elevated tanks, acid or oil storage tanks, bins, boilers, stacks, etc.

Established 1854



When inquiring check CP 7442 on handy form, pgs. 2-3

TO KEEP OUTPUT UP!



USE DIAMOND ROLLER CHAIN DRIVES

With Diamond Drives the transfer of power from motors, from shafts, from reducers is accomplished without slip. Top

production speed of the driven machines is maintained.

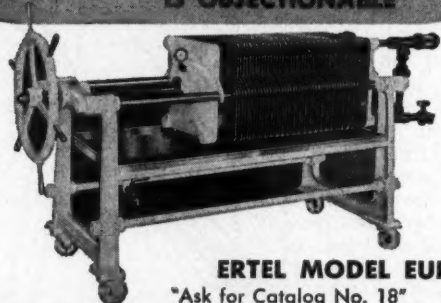
For small or large horsepower, for shafts close together or far apart, for low or high speeds, DIAMOND Roller Chain Drives do the job more efficiently. Their hardened rollers are cushioned on films of oil, insuring greater smoothness and long life. DIAMOND CHAIN COMPANY, Inc., Dept. 411, 402 Kentucky Avenue, Indianapolis 7, Indiana.

Offices and Distributors in all principal cities. Refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER

Write today for Chain and Stock Sprocket Catalog 709

When inquiring check CP 7446 on handy form, pgs. 2-3

HARD RUBBER FILTERS THE ANSWER TO THE ELIMINATION OF METALLIC PICKUP & FOR USE WHERE LIQUID TO METAL CONTACT IS OBJECTIONABLE



ERTEL MODEL EUR

"Ask for Catalog No. 18"

Capacities: 10 disk to 100 disk units with range from 5 to 50 gpm. All parts in contact with liquid are high grade hard rubber. Special hard rubber frames eliminate breakage of filter sheets and provide positive seal without gaskets.

ERTEL SERVICE: Send sample of your product for laboratory test. We will filter and return with enough recognized Ertel Asbestos Filter Sheets to prove the superior results in your plant.

ERTEL ENGINEERING CORPORATION
KINGSTON NEW YORK

Representatives in Principal Cities

MANUFACTURERS OF HIGH GRADE ERTEL ASBESTOS FILTER SHEETS
ASBESTOS SHEET FILTERS • CYLINDER TYPE DISC FILTERS
PYROGEN FILTERS • VACUUM BOTTLE FILTERS • MIXERS • CAPPERS
CENTRIFUGAL AND SELF-PRIMING STAINLESS STEEL PUMPS

When inquiring check CP 7447 on handy form, pgs. 2-3

APRIL, 1950

PROCESSING EQUIPMENT

alloys. These expansion joints have been used successfully in critical confidential projects for several years.

Features: Corrugated, bellows-type sections of stainless steel or other alloys are formed within integral control-rings and end sections. However, unlike control-rings normally used on controlled-flexing expansion joints, the rings of Flexoniflex units are not bolted in place.

Instead, they have intimate relationship with the pressure-carrier. This, plus design of the convolution wave and other highly engineered, carefully controlled manufacturing processes, qualifies them for withstanding extremely high pressures.

Description: Standard units are single or multiple-ply, and may be lined or unlined, depending on application. Sizes begin at $\frac{3}{8}$ " ID, continuing through range of extra high pressure pipe sizes.

All designs are engineered to give safety factor required by their particular services.

Source: Chicago Metal Hose Corporation, Dept. CP, Maywood, Ill. . . . or for more information check CP 7448 on handy form, pages 2 and 3.

Difficult liquids, gases, valved by hand-wound solenoid units . . .

high ratio of power to friction;
low operating cost

Uses: Solenoid valves for hard-to-handle liquids and gases.

Features: Hand-made. Hand-wound solenoids, fully moisture-proof, are oversized to assure high ratio of power to friction. Laminated cores keep operating current to minimum, assuring low-cost operation.

Precision seating. Fast-operating. Tight shutoff.

Description: Heavy non-corrosive metal valve bodies are bolted to bonnet. One-piece stainless steel valve stems and discs. Hermetically-sealed, non-corrosive plunger tube of high tensile strength.

Body and bonnet, joined by flange and gasket for tight seal, are easily taken apart without distorting body and seat.

Valve remains in open position until current is cut off. New units are mounted vertically, with solenoid on top. Power supply can be AC or DC.

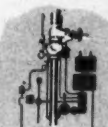
Source: Charles Engelhard, Inc., Dept. CP, 850 Passaic Ave., East Newark, N. J. . . . or for more information check CP 7449 on handy form, pages 2 and 3.



with a BLAW-KNOX FIRE PROTECTION SYSTEM



FOG NOZZLE



DELUGE VALVE



STANDARD HEAD



"LITTLE JOEY SPRINKLER"

Whatever your needs for fire protection—indoor, outdoor or special hazard—Blaw-Knox engineers are prepared to design and install a system of suitable type to fit your requirements. They will make a survey of your fire hazards, secure your insurance underwriters' requirements, prepare preliminary layout of a system and submit an estimate of the cost of installation without obligation.

*Special Volatile Storage Protection Systems, Deluge Systems, Wet Pipe Systems, Dry Pipe Systems, Water Spray and Fog Systems, Rate-of-Rise Sprinkler Systems, and Carbon Dioxide Extinguisher Systems.

When inquiring check CP 7450 on handy form, pgs. 2-3



OMEGA BELT TYPE GRAVIMETRIC FEEDER

The Omega Belt Type Gravimetric Feeder weighs and feeds dry materials continuously, automatically, on a short conveyor belt carried on sensitive scales. Whether material is fine or coarse, feeding accuracy is maintained within 98%. Handwheel adjustment of variable speed drive gives infinite number of feeding rates from 10 lbs. to 10,000 lbs./hr. (100 lbs./cu. ft. material). Ideal for automatic and proportional feeding where high accuracy is essential. For descriptive Bulletin, address Omega Machine Co., 387 Harris Ave., Providence 1, R. I.

Omega manufactures a complete line of volumetric and gravimetric feeders for dry materials and for gravity feeding of liquids and solutions:

Belt-Type Gravimetric Feeders	Disc Feeders
Loss-in-Weight Gravimetric Feeders	Rotodip Solution Feeders
Universal Feeders	Rotolock Feeders
Precision Solution Feeders	Dust Collectors
	Bucket Elevators

When inquiring check CP 7451 on handy form, pgs. 2-3

...THESE MOLDED CHEMLON PACKING RINGS CANNOT BE ATTACKED BY ANY CHEMICAL!

"JOHN CRANE" molded CHEMLON packing rings have revolutionized the packing of valves and pumps in all chemical services — because CHEMLON is not affected by any chemical!

If you have an extremely difficult sealing problem in your plant, why not try this amazing new "John Crane" packing? Other users report that it gives leakproof service for years — even when all previous packings had failed within hours. For the safety feature alone, you should pack a small valve and see for yourself.

CHEMLON is molded in a wide variety of styles and sizes to suit your most severe operating conditions.



Your chemical packing problem can be solved by CHEMLON. Our latest literature will answer your questions about it.



CRANE PACKING COMPANY
1821 CUYLER AVENUE • CHICAGO 13, ILLINOIS
DIST. BY ALL MAJOR INDUSTRIAL SUPPLY HOUSES



When inquiring check CP 7452 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Mount gearhead motors in any position . . .

compact units have integral helical gears and liberal supply of permanently lubricated ball bearings

Uses: Applications requiring a motor with reduced speed.

Features: Can be mounted in any position — standard horizontal-floor mounting, inverted-ceiling mounting, side-wall mounting or in vertical position with shaft pointing up or down.

Description: Slo-Speed gearhead electric motors, of weatherproof design, have high efficiency due to integrally-built unit with helical gears. They have a herringbone rotor, liberal supply of heavy-duty, lubricated-for-life ball bearings, and compact design through use of offset shafts. Positive lubrication provided by dip-and-splash system.

Installation of gearhead motor

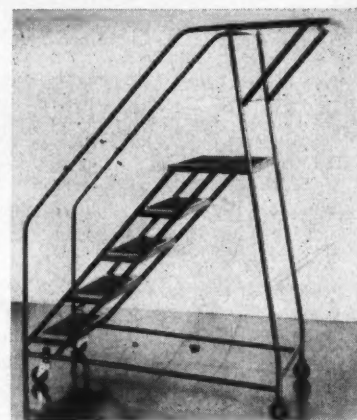
Source: Made by Sterling Electric Motors, Inc., Dept. CP, Los Angeles 22, Calif. . . or for more information check CP 7453 on handy form, pages 2 and 3.

Height of safety, working ease afforded by mobile step ladder . . .

choice of all-tubular-steel or aluminum frames; 5, 6, 7, and 8 step models; 3 tread choices

Uses: For maintenance and repair work, and in electrical, plumbing, painting and cleaning applications. Also serviceable in stock and storage rooms.

Features: Frame is all-tubular-steel or aluminum, electrically welded, and finished in two coats of bright green or silver chrome. Spring-loaded front casters are compressed when weight of worker's foot is placed on tread; this brings stationary supports to floor, holding ladder firmly in place.



Mobile safety ladder, 64" high

Description: Porta-Step safety ladder is 18" wide and 64" high. Either Carborundum safety treads or solid steel or aluminum.

Ladder can be furnished with 4 swivel casters if preferred. All casters are heavy-duty rubber-tired type.

A folding type ladder embodying same structural features is also available.

Source: Porta-Step safety ladders are made by Specialty Metal Products, Dept. CP, Dayton 5, Ohio. . . or for more information check CP 7454 on handy form, pages 2 and 3.

CHEMICAL PROCESSING

Convention & Exhibit Schedule

- April 16-20. American Chemical Society (117th National Meeting), Statler Hotel, Detroit.
- April 23-27. American Ceramic Society, Inc., Annual Meeting, Hotel Statler, New York.
- April 25. Association of Consulting Chemists and Chemical Engineers, Hotel Sheraton, New York.
- April 25-27. National Packaging Exposition, Chicago's Navy Pier.
- April 25-27. American Wood Preservers' Association, Rice Hotel, Houston, Texas.
- May 1-3. American Oil Chemists' Society, Atlanta Biltmore Hotel, Atlanta, Ga.
- June 8-10. American Institute of Chemical Engineers (Regional), Hotel Statler, Boston.
- June 12-13. Chemical Specialties Manufacturers' Association (formerly National Association of Insecticide and Disinfectant Manufacturers), Drake Hotel, Chicago.
- June 12-16. Fourth National Material Handling Exposition, International Amphitheater, Chicago.
- June 26-30. American Petroleum Institute, Midyear Division of Production and Standardization Conference, Brown Palace Hotel, Denver, Colo.
- Sept. 3-8. American Chemical Society (118th National Meeting), Chicago.
- Sept. 5-9. National Chemical Exposition, Coliseum, Chicago.
- Sept. 10-13. American Institute of Chemical Engineers (Regional), Minneapolis.
- Sept. 18-22. National Instrument Conference and Exhibit, Buffalo.
- Sept. 26-29. Industrial Packaging & Materials Handling Exposition, Philadelphia.
- Sept. 27-29. American Coke and Chemicals Institute, Skytop Lodge, Skytop, Pa.
- Nov. 13-16. American Petroleum Institute, Biltmore and Ambassador Hotels, Los Angeles.
- Nov. 15-18. National Paint, Varnish and Lacquer Association, Fairmont Hotel, San Francisco.
- Dec. 3-6. American Institute of Chemical Engineers, Annual Meeting, Columbus, Ohio.
- Dec. 4-5. Chemical Specialties Manufacturing Association, Annual Meeting, Hotel New Yorker, New York.

Tubes need cleaning? — Here are 28 pages of ideas

Profusely illustrated and in 3 colors, 28-page bulletin covers an extensive line of tube cleaners. In sections, it describes and specifies motors (driven by air, steam, water or electricity), cutter heads, drills, brushes, hose and couplings. Page is devoted to care and operation of the cleaners. For convenience, a tabulation of standard tube and pipe sizes is provided.

Amplified by in-use photos, 5 pages discuss various applications of equipment. Bulletin Y-29 is issued by Elliott Company, Lagonda Division, Dept. CP, Springfield, Ohio. When inquiring specify CP 7455 on handy form, pages 2 and 3.

we're looking for
TOUGH
labeling jobs



— Not as tough as illustrated
— BUT TOUGH!

HFN — a specialty labeling gum — adheres labels to greasy, hot or wet bottles. Ideal for vegetable and mineral oil, olive, condiment, preserve, dairy products and mayonnaise containers. Smooth or stippled glass. Handles all types of label stock — including foil. All types of glass. Withstands dry or moist refrigeration.

HFN comes ready for use. It is a "short" adhesive with top machining qualities. Extremely tacky. Won't crystallize or soften with varying humidities. Only a very thin film is required.

We can show you we mean business.

Mail the attached coupon!

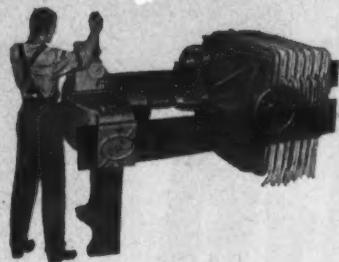
Address: 270 Madison Ave., NEW YORK 16; 3461 So. Washtenaw Ave., CHICAGO 32; 735 Battery St., SAN FRANCISCO 11, and other principal cities. In CANADA: National Adhesives (Canada) Ltd., TORONTO, MONTREAL. In ENGLAND: National Adhesives, Ltd., SLOUGH.

National
ADHESIVES

EVERY TYPE OF ADHESIVE
FOR EVERY INDUSTRIAL USE

We've got a tough labeling job adhering _____
to _____
☐ Please send 5 lbs. of HFN. Bill us at drum price.
☐ Please have a National representative call on _____
Mr. _____
Company _____
Address _____
City _____ Zone _____ State _____

When inquiring check CP 7456 on handy form, pgs. 2-3

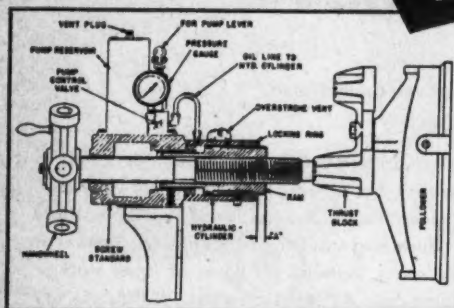


After the handwheel has advanced the screw into contact with the thrust block, a few strokes of the hand pump lever advance the hydraulic ram to assure absolute tightness of the press, as much as 60 tons closing pressure. All this takes but a minute. And opening the press is just as easy.

Save
TIME
LABOR
Avoid
ACCIDENTS
TROUBLE

in Filter Press Operation
with the

HYDRO-KLOSER



Easy to install at moderate cost on any Shriver 24" or larger filter press, the Hydro-Kloser definitely ends the back-breaking job of manual closing, reducing possibility of accidents. It quickly pays for itself in shortened closing time, convenience, better labor satisfaction, faster filtering cycles. It makes your present manually closed filter press practically automatic. Write for Bulletin.

T. SHRIVER & COMPANY, Inc., 846 Hamilton St., Harrison, N. J.

When inquiring check CP 7457 on handy form, pgs. 2-3

YOU CAN
CUT PIPING COSTS with
CATAWISSA

PERFECT
SEAL
UNIONS



CATAWISSA
HOT FORGED
STEEL
UNIONS

priced to
compete with
better grade
malleable
iron unions

also . . .
CATAWISSA
Full Opening
Double Union
SWING
CHECK
VALVES

a type for
every use!
CATAWISSA
STAINLESS
STEEL
UNIONS
machined from solid bars

WRITE FOR
BULLETIN
10-A

CATAWISSA VALVE & FITTINGS CO.
620 Mill St. • CATAWISSA, PA.

When inquiring check CP 7458 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Wear horsehide mits
when handling metal,
brick, tile . . .

pads slip on quickly, straps have clips, assure fit to any hand

Uses: Especially made for handling brick, tile, metal sheets, stampings, cartons and materials that present hazard of hand injury.

Features: Cool and comfortable, adjustable to any size and easily strapped-on.

Description: Made of heavy, genuine horsehide and held in place by snap-fastened strap.



Tough horsehide mits protect hands

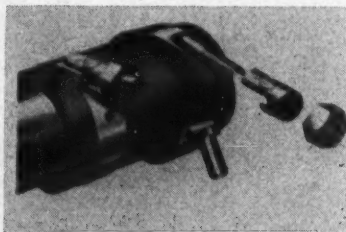
Source: Safti-Mitt Handpads are available from General Scientific Equipment Co., Dept. CP, 27th & Huntingdon Sts., Philadelphia 32, Pa. . . . or for more information check CP 7459 on handy form, pages 2 & 3.

Tighten hose clamps
securely from any
angle . . .

wrap-around clamp tightened by socket, speed or end wrench

Uses: Nut-tightened, wrap-around hose clamps in 7 sizes, from 1 to 2 1/8", for withstanding pressures up to 300 psi. For larger hose, two or more clamps of same or different diameters can be connected together.

Features: Quickly tightened, from any angle, with an end wrench, sock-



Wrap-around hose clamp is tightened by a nut

et or speed wrench. Hose can be installed first and the clamp applied later.

Meet all Army and Navy specifications. Thread stands more than double Army and Navy specifications,

Mix and Grind in One Mill

✓ **Increase**
Capacity

✓ **Eliminate**
Separate
Mixing

✓ **Get Uniform**
Grind and
Color



ABBÉ
Pebble and
Ball MILLS

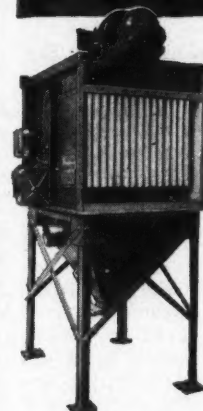
We also build jar mills,
jar rolling machines,
"Dispersall" mixers and
special paint processing
equipment.

No attention needed
while grinding; no
solvent loss; easy to
clean. Abbé Mills are
world famous for bet-
ter construction and
performance. Sizes
from 9 to 3304 gallon
total mill volume.
Write for Catalog 55.

ABBÉ ENGINEERING CO. • 46 CHURCH STREET
NEW YORK 7, N. Y.

When inquiring check CP 7460 on handy form, pgs. 2-3

Clean Up Dust



Make a Profit with
This Pangborn Unit-
Type Collector

Stop dust in your plant! Install a Pangborn "CL" unit-type cloth Collector in areas with heavy dust concentrations. These Collectors are compact, factory-assembled units shipped to you complete. Have famous Pangborn non-sag metal frames, removable cloth filters, motor driven screen shakers. Filtering area totals 180 to 820 sq. ft.

Pangborn dust control systems are famous for turning dust into profits. **GET THE FACTS:** Send us your problem, we'll mail complete details on the unit you need.

Address: **PANGBORN CORPORATION, 286 Pangborn Blvd., Hagerstown, Maryland.**

Look to Pangborn for the latest developments in Dust Control and Blast Cleaning Equipment



OP THE DUST HOG

from stealing profits with

Pangborn
DUST CONTROL

When inquiring check CP 7461 on handy form, pgs. 2-3

KEEP TROUBLES OUT...
put
Stainless Steel
FLOATS in

COMMON float failures can cause costly repairs and shutdowns which cut down on the efficiency of plant operations. That's why it pays to specify stainless steel floats in order to get long, trouble-free service in all but extremely specialized applications where specific materials are required.

When you use Chicago's stainless floats, you're assured of the best floats available—floats that will pay big dividends in less maintenance and more continuous service. Specify Chicago's stainless floats and keep troubles out!

WRITE FOR FREE CATALOG

CHICAGO FLOAT WORKS, INC.

2340 So. Western Ave.
Chicago 8, Illinois

When inquiring check CP 7462 on handy form, pgs. 2-3

CLEVELAND
PNEUMATIC
VIBRATORS

POWERFUL VIBRATION SPEEDS FLOW OF BULK MATERIALS FROM BINS, HOPPERS, AND CHUTES

Rapid, hammer-like blows from CLEVELAND Type "F" vibrators assure a steady flow of material from bins, hoppers, and chutes of all types. These powerful vibrators are recommended for moving bulk sand, coal, lime, ore, cinders, slag, steel chips, cement, soda ash, etc.

Low-cost, dependable Type "F" air vibrators are available from stock in six standard sizes for attachment to bins and hoppers having capacities from one to several hundred tons.

CLEVELAND Type "F" vibrators operate at maximum efficiency regardless of mounting position. They are designed for continuous or intermittent operation and engineered for long service life.

WRITE FOR COMPLETE CATALOG
AND PRICE LIST.

CLEVELAND VIBRATOR CO.
2707 CLINTON AVENUE
CLEVELAND 13, OHIO

When inquiring check CP 7463 on handy form, pgs. 2-3

APRIL, 1950

PROCESSING EQUIPMENT

or from 80 to 110 lbs torque. Unnecessary to apply shellac or other compounds to assure leak-proof connections.

Advanced design of split thread provides push-pull action, assuring perfect 360° seal.

Description: Tightens with a nut. Clamps are 9/16" wide, of .042 cold rolled steel, cadmium-plated after fabrication to resist corrosion and rust. A .052-thick thimble is used with SAE 3/8" nut. Type K-C clamp.

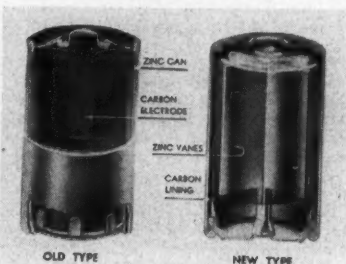
Source: Blaisdell Manufacturing Co., Dept. CP, 1404 Alamos Ave., Long Beach 13, Calif. . . or for more information check CP 7464 on handy form, pages 2 & 3.

"Inside-out" flashlight battery has carbon shell, zinc core . . .

will not swell, stick or jam; fits all standard cases

Uses: Industrial flashlight batteries for prolonged useful service in any standard-size flashlight.

Features: "Inside-out" construction. More light-minutes than any previous Eveready cell, providing more than double the usable light; i. e., the amount of brilliant white light avail-



New cell has no metal can to leak or corrode

able before battery becomes too spent to produce light of useful efficiency. Will not swell, stick or jam in flashlight. No change necessary in lamps or cases when used in D-size (standard) flashlights.

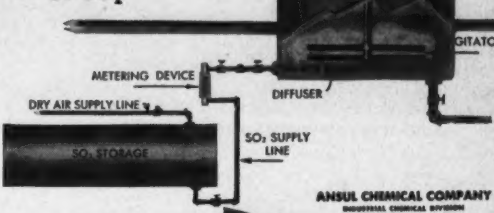
Description: Container, formerly made of zinc, is now made of carbon, with zinc power vane as center element. Since carbon is inert to electrolytic action and will not perforate, the cell cannot leak or corrode, regardless of battery age or degree of discharge.

Eveready No. 1050.

Source: National Carbon Division, Union Carbide and Carbon Corporation, Dept. CP, 30 E. 42nd St., New York 17, N. Y. . . or for more information check CP 7465 on handy form, pages 2 and 3.

AN Easy WAY TO ACIDIFY...
OR NEUTRALIZE... BLEACH...
PRESERVE... DEOXIDIZE... REDUCE...
DECHLORINATE...

CONTROLLED DIFFUSION OF SO₂



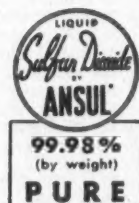
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Improved
PROCESS EFFICIENCY

IN
One Continuous
OPERATION

With the

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ANSUL SO₂ is a volatile, easy to control, multi-purpose acid. It permits the user to . . . 1) combine a number of individual process steps into one simple operation . . . 2) easily remove many product impurities sometimes difficult to eliminate . . . resulting in improved process efficiency and better quality control of the finished product.



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Write for Bulletin No. P-109 for more information and if possible, include a description of the application in your plant. Our Technical Staff will help you take full advantage of the benefits outlined above. In addition to our Bulletin describing the Ansul Constant SO₂ Concentration System, we will send you an informative treatise describing the properties, characteristics and industrial uses of Liquid Sulfur Dioxide . . . An Ansul Technical Staff Publication.

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When inquiring check CP 7466 on handy form, pgs. 2-3



Signature **OF SKILL**

- The above stainless equipment was custom-made by Van for textile folks. But on it the *signature of skill* recommends its make to all process equipment buyers.
- More and more process industries are appreciating their need for the stainless corrosion-resistant stainless or monel metal equipment for which Van has been famous for years. Besides, it's easier to keep it clean . . . a vital factor in many modern plants.
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When inquiring check CP 7467 on handy form, pgs. 2-3

Page 128

**\$500.00 in Annual Awards
plus awards of \$25.00 each
for
New Solutions of Processing Problems**

(See announcement, page 6)

The Rules:

- 1) "New Solutions" will be considered for editorial treatment on the basis of their: 1) Fact-content, 2) Practical value to readers, and 3) Adaptability to an article stating a specific chemical processing or affiliated problem, how it was solved, and the results achieved as compared to results formerly.
All "New Solutions" must pertain to an actual, specific case not previously published in *Chemical Processing*. Literary ability is unnecessary; all material will be edited by our staff and "cleared" through the respective manufacturers before publication.
To determine if your fact-article possesses the necessary elements to qualify for presentation by our editors as "New Solution", check your information against that contained in articles appearing in the "New Solutions" section of this magazine, page 8. However, if your "New Solution" is a worthy one, even though some of your data may be too sketchy, our editors will work with you to develop the missing facts.
- 2) All entries must contain the following information:
 - a) Sender's name, title and plant address.
 - b) Name and address of the plant or company where the problem occurred.
 - c) Name and address of the company, or companies, whose materials, equipment or consultation were employed in solving the problem.
 - d) A factual summary showing: 1) the problem that existed, and why a change was necessary; 2) what was done to overcome the problem; 3) a comparison of results, both before and after the problem was solved, showing in facts and figures, or percentages, the tangible and concrete degree of accomplishment, as well as any additional benefits that were realized. Be specific. This will help you as well as the editors.
- 3) Advertising, publicity, publishing, sales and sales promotion executives and personnel shall not be eligible to compete, regardless whether affiliated with a manufacturer, advertising agency or otherwise.
- 4) At least two months should be allowed between the date of mailing an entry and the date of its possible publication. Some "New Solutions" may take longer than others, particularly where facts are inadequate, or where pre-publication approvals must be obtained from more than one manufacturer.
Because of this, no material submitted for these awards will be published prior to the May, 1950, issue of *Chemical Processing*. Qualified material published in May and subsequent issues of *Chemical Processing*, up to and including April, 1951, will be eligible for annual awards of \$250, \$150 and \$100 for first, second and third best reader-submitted "New Solutions", respectively. Winners of annual awards will be announced within three months after publication of the May, 1951, issue.
- 5) All reader-submitted "New Solutions" will be acknowledged as promptly as feasible.
- 6) Published material originating from reader-submitted "New Solutions" will be identified as such, and the sender's name published along with a special "Locator" index for finding such articles in a particular issue.
- 7) All manuscripts become property of Putnam Publishing Company, and will not be returned. Awards of \$25 shall be contingent upon publication in the editorial columns of *Chemical Processing*, and decision of the editors in selecting or rejecting material for editorial development shall be final. Readers may submit as many "New Solutions" as they wish; however, each "New Solution" article shall be eligible for only one \$25 award, and one annual award, regardless if published in one or more publications of Putnam Publishing Company.
- 8) Judging of the three best reader-submitted "New Solutions" of the year will be handled by an Editorial Awards Committee consisting of 10 impartial reader-judges. Members of this committee will be announced later.

Mail all entries to:

AWARDS EDITOR

Chemical Processing

737 No. Michigan Avenue
Chicago 11, Illinois



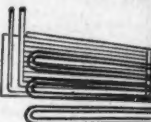
LESS MAINTENANCE

Weighs less than half as much as equivalent pipe coil. Platecoll is easy to handle. Installation can be made in $\frac{1}{2}$ hour by one man and a helper.

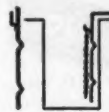


MORE PRODUCTIVE CAPACITY

Platecoil has more prime surface per sq. ft. of area than pipe coil, heats faster, and leaves more tank space for production work.



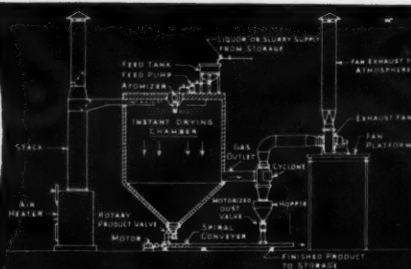
NO LOSS OF SOLUTION



Platecoll can be removed from outside of tank in a matter of minutes without dumping. All connections above liquid level.

**Write Today For New
Free Bulletin No. P34**

When inquiring check CP 7468 on handy form, pgs. 2-3




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Many have proved savings with "INSTANT DRYING." Your drying problem in a letter will bring detailed information on "INSTANT DRYING" and specific answers to your questions.

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When inquiring check CP 7469 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

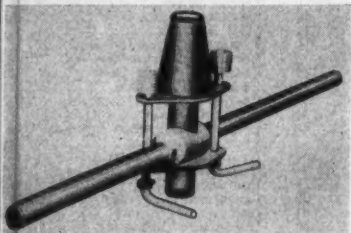
Stops wild flow from tank cars; unloads petroleum, etc . . .

10-lb stopper-unloader reduces unloading risks

Uses: Stopper and unloading device for emergency use on tank cars containing petroleum products, other liquids.

If desired, contents may be unloaded through the device, eliminating need for unloading from overhead.

Features: Wild flow can be stopped as soon as device is in place, thus compensating for defective tank



Tank car "Whopper Stopper"

car outlet valves, lodged foreign material or other causes of losing material on ground.

Reduces hazards of fire, explosion, injury or property damage.

Description: Made of neoprene, magnesium, brass and aluminum. Height, 16-1/4". Length, including handles, 60". Weight, 10 lbs.

Source: Industrial Products Company, Dept. CP, 2963 N. Fourth St., Philadelphia 33, Pa. . . or for more information check CP 7470 on handy form, pages 2 and 3.

Recommends motors for hazardous locations

Explosion-proof motors — 3/4 to 125 hp, and speeds from 600 to 3600 rpm — are recommended for applications where hazardous conditions exist. Includes Class I, Group D; Class II, Group F & G; and Bureau of Mines designs. Discusses corrosion-resisting features; describes construction, and specifies motors. Bulletin C-130, issued by the Reliance Electric & Engineering Co., Dept. CP, 1111 Ivanhoe Rd., Cleveland 10, O. When inquiring specify CP 7471 on handy form, pages 2 and 3.

For more information on product at right, specify CP 7472 . . . see information request blank between pages 2-3

A Right Drive For Any Problem

Consult Link-Belt!

Power at the required speed is available through the use of a Link-Belt enclosed gear drive. Regardless of your specific needs for ratio, power or speed, we have the correct answer, and our engineers will be pleased to assist you with your power transmission problems.

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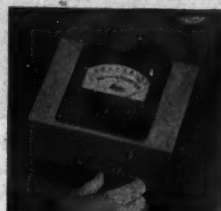
PHOTOMETER TELLS WHEN TO PICK RIPE FRUIT

Recent experiments by agricultural researchers with the Industrial Rouy-Photometer by Leitz led to a new means for scientifically determining the ripeness of vegetables and fruits. Color tests of pigment extracts helped determine the most favorable stage of quality and ripeness in the picking of asparagus, peaches and tomatoes for canning and marketing. Demonstration of the Photometer's usefulness in food industries indicates significant possibilities for greater process efficiency in countless fields now lacking a precise and accurate method of measuring color variations.

PHOTOMETER PARTS MEET RIGID TESTS FOR SENSITIVITY, ACCURACY

Photoelectric cells for the Industrial Rouy-Photometer by Leitz are aged by a special process to assure constancy of response, then selected for sensitivity and spectral response. The instrument's specially designed microammeter also must pass individual testing and inspection. Each glass filter and filter element is controlled in production and matched to produce identical spectral transmission curves.

ROUTINE ANALYSES MADE IN 3 SIMPLE STEPS



1. Place an absorption cell containing a solution of zero concentration in the Photometer and set needle to 100.



2. Remove the absorption cell and replace with a cell containing the unknown. Note the reading.



3. Refer to your calibration table which indicates concentration of unknown for the particular reading.

Functional error cut to less than 0.1% by Leitz Industrial Rouy-Photometer

The Industrial Rouy-Photometer by Leitz is now available to any industry requiring colorimetric tests for analytical control or research. This greatly improved type of photoelectric colorimeter offers for the first time a measurement of electrical energy which is strictly linear to the transmitted light energy. This unique advantage, permitting compensation of functional errors to within 0.1%, is made possible by careful matching of photoelectric cell and microammeter.

SIMPLE TO OPERATE

Operation of the Photometer is surprisingly simple, for all adjustments are made with a single control. Once calibrations have been set up, any competent laboratory technician can make liquid concentration readings quickly and conveniently. Maximum reproducibility is assured, and identical readings on the same specimen can be obtained by different workers, even on different Photometers.

SPEEDS ROUTINE CONTROLS

Produced first for use in clinical chemistry, the Leitz Rouy-Photometer proved widely successful in speeding up routine tests while insuring a high standard of accuracy. To provide industry with similar advantages in product control, Leitz engineers developed the Industrial Rouy-Photometer. Extensive tests and performance in the field have demonstrated the instrument's suitability for use in such widely varied industries as water supply, foods, electro-plating, metallurgy, dye stuffs, tanning, wherever colorimetric absorption analysis spells better process control.

PRICED LOW

The Industrial Rouy-Photometer costs only \$210, considerably less than is ordinarily paid for equipment of this type. This low price is made possible by a high volume of production.

Leitz representatives will be happy to consult with you at any time on how the Industrial Rouy-Photometer can be used in your industry.

For details, write Dept. CP

E. LEITZ, Inc., 304 Hudson St., New York 13
LEITZ SCIENTIFIC INSTRUMENTS • MICROSCOPES
LEICA CAMERAS AND ACCESSORIES

Discussed in This Issue - - -

PROCESSES, EQUIPMENT and MATERIALS



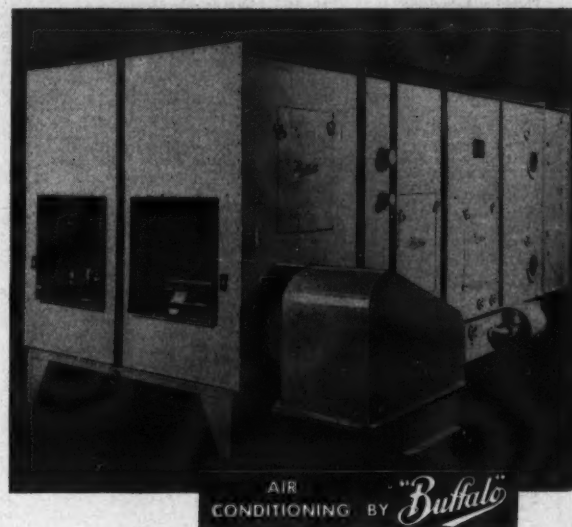
Use this "quick-locator" when you want information on a specific type of process, equipment or material mentioned in the processing stories or the advertisements in this magazine. Everything discussed in this issue is given here, if you want more data you can write manufacturer direct... or turn to pgs. 2-3 and use the handy "Information Request Slip." This is a special service provided by the publisher... no obligation or charge, of course. The publisher contacts the proper manufacturers for you—information comes to you direct.

Acid, Fatty	29, 66	Cloth, Wire	39, 72
Actuators, Linear	70	Clothing, Rubberized	32
Actuators, Rotary	70	CO ₂	22
Adhesives for Transparent Films	19	Coatings, Corrosion-resistant	26, 91
Adhesives, Labeling	125	Coatings, Glycerine-derived	68
Absorbents	28	Coatings, Plastic Cork	32
Agitators	94	Coatings, Protective	18, 31
Air Conditioning	131	Coatings, Solvent Resisting	30
Air Diffusers	68	Coatings, Tank	74
Air Purgers, Refrigeration Plant	104	Coatings, Temporary Protection	23
Alkyls, Oil-Modified	26	Coatings, Vinyl	30, 31
Alloys, Chemical Resistant	33	Code Daters, Automatic	110
Alloys, Steel Casting	69	Colorimeters	49
Alloys, Welding	41	Compressors, Air	109
Alumina	17	Compressors, Air and Gas	69
Aluminum	91	Compressors, Rotary	106
Analizers, Gas	76	Computers, Laboratory	44
Analizers, Liquid	76	Condensate Drainage Control	48
Anodes, Magnesium	58	Condensate Return	77
Antifoaming Agents	31	Conduit, Flexible	99
Antioxidants	19	Containers, Stainless	106
Atritor	89	Containers, Steel	35
		Controllers, Opposite page	13
		Controllers, Air Operated	49
		Controllers, Combustion	69
		Controllers, Evaporator	69
		Controllers, Flow	45, 66
		Controllers, Fluid Density & Specific Gravity	66
		Controllers, Furnace Pressure	75
		Controllers, Level	44, 47
		Controllers, Speed	66
		Controllers, Tube-rolling	62
		Conveying Systems	62
		Conveyor-elevators	41
		Conveyors, Belt	38, 39, 79
		Conveyors, Gravity	74
		Conveyors, Package	39
		Conveyors, Pneumatic	39
		Conveyors, Power	74
		Conveyors, Screwlift	41
		Conveyors, Traction Cable	41
		Corrosion, Prevention	28
		Counters, Radiation	112
		Couplings, Flexible	80, 105
		Couplings, Shaft	100
		Creams, Protective	22
		Crushers	64, 65
		Crystallization Equipment	70
		Cutters, Drum Head	100
		Cutters, Industrial	112
		Cylinders, Gas	37
		Cylinders, Hydraulic (Oil)	115
		D	
		DDT Dust Concentrates	29
		DDT Wettable Powders	29
		De-ionizing Equipment	85
		Dessicants	28
		Desulfurizing Agents	26
		Detergents	24, 25
		Detergency, Fundamentals of	73
		Diatomaceous Earth	3
		Disillation Units	3
		Drives, Pipe Tool	132
		Drives, Power	129
		Drives, Roller Chain	123
		Drives, Variable-speed	66, 129
		Drum-discharge Units	102
		Drums, Magnetic	106
		Drums, Stainless	106
		Dryers	101
		Dryers, Infra-red	95, 102
		Dryers, Liquid & Gas	72
		Drying Systems	101
		Drying, Freeze	66
		Ducts, Acid and Alkali Proof	21
		Dye, Repellent Dip	63
		Dye Liquor Ingredients	26
		Dyes, Textile Brightening	25
		Dye-testing Cabinet	128

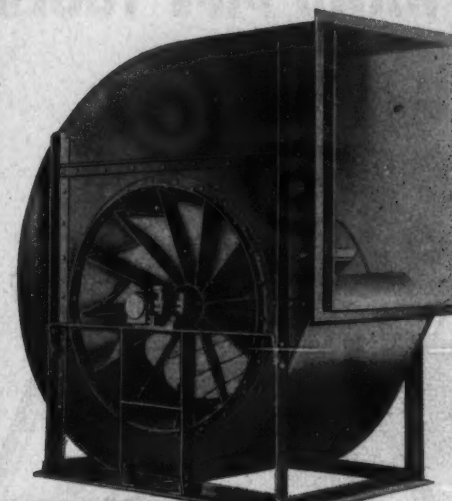
When inquiring check CP 7473 on handy form, pgs. 2-3

E		
Elevators, Bucket	41	
Emulsifiers	24, 25	
Emulsifiers, Toxicant Concen-	18	
Emulsions, Resin	31	
Engines, Diesel and Gas	69	
Equipment, Corrosion-resistant	6	
Evaporators	94	
Exhausters	109, 120	
Exhausters, Fume	110	
Exhausters, Power	110	
Expanders, Tube	58	
Expander, Bench Model	89	
F		
Fabrication, Aluminum	122	
Fabrication, Process Equipment	9	
Fabrication, Sheet Metal	82	
Fabrication, Stainless Steel	68	
Fabrication, Wire & Metal	39	
Fans	116	
Fans, Duct	120	
Fans, Stack	84, 120	
Fans, Ventilating	120, 131	
Fastenings	73	
Fastenings, Corrosion-resistant	22	
Fastenings, Monel	111	
Fastenings, Stainless Steel	114	
Feeders, Belt Gravimetric	124	
Ferrous Ammonium Sulfate	32	
Ferrous Metallurgy Chart	64	
Filling Machines	10	
Filter Aids	14	
Filter Cloth, Metallic	72	
Filter Cloth, Synthetic Fiber	60	
Filter Media, Metallic	92	
Filter Media, Synthetic	97	
Filter Presses	134	
Filters	73, 75, 83	
Filters, Continuous Vacuum	119	
Filters, Disc	121	
Filters, Drum	80	
Filters, Hard Rubber	123	
Filters, Horizontal Plate	93, 120	
Filters, Porous-stone	62	
Filters, Fine	106	
Filters, Stainless Steel	108	
Fire Extinguishers, Dry	75, 96	
Fire Hazards	75	
Fire Protection Systems	123	
Fittings, Lead	30	
Fittings, Nickel Alloy	106	
Fittings, Pipe	4	
Opposite Page 14, 57, 80, 95		
Fittings, Sanitary	75	
Fittings, Welding	76	
4, Opposite Page 14, 57, 72, 76		
Flanges, Forged Steel	76	
Flashlight Batteries	127	
Flavors	33	
Floats, Stainless Steel	127	
Floor Patch	134	
Floor Resurfacer	134	
Flotation Agents	26	
Flow Meter Engineering	116	
Foundry Sand	27	
Freeze-drying	96	
Fume Collectors	103	
Fungicides	28, 30	
Furnaces, Box	51	
Furnaces, Muffle	51	
Furnaces, Tube	51	
Furnaces, Vertical Slot Forge	120	
G		
Gaskets	4th Cover	
Gaskets, Teflon	32	
Gauges, Pressure	32	
Gauges, Tank	44, 50, 57	
Gearmotors	12	
Gears, Angle	110	
Geiger Counters	45	
Generators, A-C	79	
Generators, Steam	102	
Gloves, Neoprene	104	
Gloves, Neox Rubber	83	
Gloves, Rubber	72	
Glycerine	27, 61	
Goggles, Welding	105	
Grab, Barrel	38	
Graphite, Resin-impregnated	27	
Grinders	64, 65	
Gums for Hot, Greasy Labeling	125	
H		
Hair-waving-formula Ingredi-	30	
ents	122	
Hammermills	126	
Handpads, Protective	68	
Heat Exchangers	27	
Heat Exchangers, Graphite	27	
Heaters, Coil Tank	128	
Heaters, Dielectric	84	
Heaters, Dish Ring	95	
Heaters, Infrared	102	
Heaters, Water	68, 82	
Heating-cooling Units	90	
Heating Elements	122	
Hoists, Air	40	
Hoppers, Self-dumping	37	
Hose Clamps	126	
Hose, Flexible	82	
Hose, Flexible, Bronze Metal	112	
Hoods, Fume	100	
Hose, Gasoline & Oil	71	
Hydrocarbon Standards	33	
Hydrogenation, Coal	71	
Hydrometers	43	
I		
Imprinters	14	
Incinerators	118	
Indicators, Smoke Density	35	
Indicators, Bin Level	52	
Inhibitors, Rust	21	
Insect Control, Mechanical	109	
Insecticidal Chemicals	20	
Insecticides	30, 32	
Instant Drying System	128	
Insulation, Low-temp.	67	
Insulation, Mineral Wool	78	
Intermediates, Chemical	26, 30	
Intermediates, Dyesuff	16, 26	
Intermediates, Fungicide	16, 26	
Intermediates, Insecticide	16, 26	
Intermediates, Pharmaceutical	16	
Intermediates, Plasticizer	16	
Intermediates, Resin	16	
Ion Exchangers	25, 83	
Isotopes, Radioactive	31	
J		
Joints, Expansion	122	
Joints, Rotary Pressure	116	
K		
Kettles, Process	114	
L		
Laboratory Equipment 90, 108, 119		
Laboratory Furniture	108	
Ladders, Mobile	124	
Ladders, S-sfe	82	
Lathes, 10"	79	
Lead Wool	30	
Leak-sealing Compounds	84	
Lighting, High-position	86	
Lighting, Outdoor	86	
Liners, Bag	15	
Lining, Acid and Alkali Proof	21	
Lining, Tank	74	
Lithium	64	
Lubrication, Centralized	70	
Lubricants	72	
Lubricants, Valve	110	
M		
Magnets, Floor	84	
Magnets, Rectangular	92	
Magnifiers	45	
Manometers, U-tube	42	
Manway Necks & Nozzles	112	
Markers	14	
Markers, Pipe	105	
Masks, Gas	102	
Materials of Construction,		
Graphite	27	
Material Handling Equipment	75	
Mats, Runner	122	
Metallizing	28	
Meters, Air Flow	53	
Meters, Chlorine	52	
Meters, Filament Tension	48	
Meters, Flow	44, 50, 53	
Meters, Fluid Density & Spe-		
cific Gravity	66	
Meters, Liquid	47, 51	
Meters, Mercury Flow	48	
Meters, pH	52	
Meters, Syrup & Water	67	
Mildew Preventives	24, 25	
Mills, Attrition	74	
Mills, Ball	126, 3rd Cover	
Mills, Hi-temp Lab	89	
Mills, Roller	64	
Mixers	73	
Mixers, Double Arm	76	
Mixers, Laboratory	51, 76	
Mixers, Permanent	3rd Cover	
Mixers, Portable	94, 3rd Cover	
Mixers, Side-entering	3rd Cover	
Motors, Control	112	
Motors, Electric	129	
Motors, Explosion-proof	113	
Motors, Fan-cooled	12, 124	
Motors, Geared	66	
Motors, Hydraulic	112	
Motors, Loom	10	
Motors, Sanitary	66	
Motors, Variable-speed	66	
N		
Nozzles, Atomizing	62	
Nozzles, Spray	62, 69	
Nuts	118	
O		
Odor-masking Chemicals	24, 25	
Oil Cup	67	
Oil Extraction Processes	121	
Oil Removal from Steam-con-		
densate Returns	11	
Oils, Drying	70	
Oils, Essential	33	
Oils, Fish	29	
Oils, Linseed	29	
Oils, Soybean	29	
O-rings	78	
Ovens, Laboratory	102	
Oxalic Acid	32	
P		
Packing	4th Cover	
Packing, Chemical Resistant	96	
Packing Cups	4th Cover	
Packing, Hydraulic	78	
Packing Rings	124	
Packing, Self-lubricating	118	
Packing, Semi-metallic	74	
Packing, Teflon	32	
Packing, Valve	124	

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Paint, Corrosion-resistant	61	Shovel-Cranes, Truck-mounted	78
Panels, Instrument & Control	60	Silos, Glazed Tile	98
Pans, Evaporation	9	Sinks, Laboratory	86
Paraffin, Handling of	24, 25	Siphons, Acid	82
Perfuming Materials	33	Solvent Extractors, Rotary	8
Personnel Programs	70	Solvents, Nitrocellulose Lacquer	19
pH Indicators	50	Spectrophotometer, Infrared	52
pH Meters	53	Speed Reducers	66, 79, 108
pH Recorders	50	Speed Reducers, Worm Gear	108
Phosphorous Acid	24, 25	Sprayers, Hand	77, 101
Photographic Chemicals	50	Stabilizers, Vinyl	28
Photometer, Industrial	130	Steel, Corrosion-resistant	22
Phthalic Anhydride	24, 25	Steel, Low Carbon Stainless	62
Pickling Equipment	73	Stitchers	98
Pipe	57	Stopper-unloaders, Tank Car	129
Pipe, Acid and Alkali Proof	21	Strainers, Wire Screen	113
Pipe, Aluminum	121	Strapping, Steel	98
Pipe & Fittings, Graphite	27	Studs	118
Pipe, Lead	37	Sulfur Dioxide, Liquid	127
Pipe, Plastic	20	Surface Active Agents	23
Pipe, Pyrex	21	Switches	71
Pipe, Rubber-lined	15	Switches, Mercury	109
Piping Systems	95	Synthetic Resin Unit, Lab	106
Plasticizers for Synthetic Resins	22		
Plasticizers, Polyester-type	16		
Plasticizers, Primary	66		
Plasticizers, Secondary	24, 25		
Plasticizers, Vinyl	24, 25		
Plastics Extrusion	33		
Plastics, Insulating	31		
Polarographs, Manually Operated	54		
Preservatives, Wood	24, 25		
Printers	24		
Processing Equipment 3, 9, 75, 114			
Processing Equipment, High-temp	73		
Processing Equipment, Vacuum	98		
Propionitriles, Beta-substituted	16		
Proportioning Equipment	110		
Pulleys, Variable-speed	114		
Pulping Agents	24, 25		
Pumps	4		
Pumps, Acid Handling	87		
Pumps, Air	88		
Pumps, Boiler Feed	77		
Pumps, Centrifugal	66, 70, 115, 122		
Pumps, Ceramic Stoveware	118		
Pumps, Chemical	10, 104		
Pumps, Corrosion-resistant	132		
Pumps, Diaphragm	8, 74		
Pumps, Engineering Papers on	97		
Pumps, Gas	109		
Pumps, HInd	134		
Pumps, High Pressure	63		
Pumps, Hydraulic	66		
Pumps, Piston	69		
Pumps, Proportioning	86		
Pumps, Rotary	104		
Pumps, Sanitary	106		
Pumps, Self-priming	98		
Pumps, Slurry	41		
Pumps, Turbine	73		
Pumps, Vacuum	77, 100, 113, 116		
Pyrometers, Indicating	50		
Pyrometers, Portable	48		
Pyrometers, Surface	50		
R			
Racks, Drum Tilting	38		
Racks, Mobile	38		
Radiation Survey Meter	50		
Radioactive Isotopes	31		
Reactors, Stainless Steel	3		
Recorders	45		
Recorders, Fluid Density and Specific Gravity	66		
Recorders, SO ₂ Concentration	47		
Recorders, Sulfur	70		
Rectifiers	88, 108		
Reducing Agents	26		
Refractometers, Recording	42		
Regulators, Pressure Reducing	66		
Regulators, Speed	52		
Regulators, Temperature	7		
Research & Testing Facilities	76		
Resin Emulsions	56, 70		
Resins, Coating	28		
Resins, Rubber Reinforcing	21		
Resins, Syrenated Alkyd	72		
Resins, Thermoplastic	31		
Resins, Vinyl Butyral	43		
Rod, Plastic	93		
Rotameters	32		
Rolls, Pellet Crumbling	77		
Rubber, Low-temperature	21		
Rubber Processing Equipment			
Rust Preventives			
S			
Safety Equipment	113		
Sands, Foundry	27		
Saran Rubber	14		
Scales, Crane	66		
Screens, Vibrating	76		
Sealers, Tank	30		
Seals, Corrosion-resistant	88		
Seals, Self-lubricating Carbon	113		
Separators, Air	87		
Separators, Magnetic	59, 115		
Sheaves, Variable-speed	116		
Sheet, Lead	30		
Sheet, Plastic	31		
Sheet, Saran Rubber	14		
T			
Tanks, Aluminum	122		
Tanks, Glazed Tile	98		
Tank Linings, Saran Rubber	14		
Taste-masking Chemicals	24, 25		
Technical Data Sheets	76		
Temperature Control Units, Liquid-recirculating	119		
Temperature-sensing Systems	52		
Temperature Standards	48		
Test Cabinets, Humidity-temperature	51		
Test Center	65		
Testers, Moisture	46		
Testing & Research Facilities	7		
Thermometers, Dial	54		
Thermometers, Platinum	43		
Thickeners	108		
Thiocarbamide	24, 25		
Thread Compound	33		
Threaders, Power	132		
Time Study	117		
Titration, Automatic	46		
Towers, Absorption	68		
Towers, Cooling	108		
Towers, Fractionating	68		
Transmissions, Variable-speed	67		
Traps, Steam	3, 6, 15, 28		
Triethanolamine	18		
Trucks, Barrel	83		
Trucks, Carboy	38		
Trucks, Drum	83		
Trucks, Fork-lift	34, 38, 41		
Trucks, Hand	40, 71		
Trucks, Hand Dump	38		
Trucks, Lift	10		
Trucks, Pallet	36		
Tube Cleaners	125		
Tubes, Condenser	71		
Tubing, Flexible Metal	105		
Tubing, Plastic	31		
Tubing, Stainless Steel	106		
Tubing, Tygon	29		
Turbines, Steam	107		
Turrets, Bed	106		
U			
Unions, Hot Forged Steel	126		
V			
Valves	4, 106, 117		
Valves, Angle	87		
Valves, Butterfly	67, 90		
Valves, Check	87		
Valves, Diaphragm	54		
Valves, Float	100		
Valves, Gate	67, 88, 95		
Valves, Globe	87		
Valves, Hydraulic-Control	66		
Valves, Lead	30		
Valves, Pinch-type	81		
Valves, Reducing	74		
Valves, Relief	70, 103, 117		
Valves, Rubber-lined	90		
Valves, Slide	95		
Valves, Solenoid	99, 123		
Valves, Vent	90		
V-belts	11		
Vessels, "Knock-down"	107		
Vessels, Monel	97		
Vessels, Pressure	107		
Vibration Absorbing Unit for Instruments	46		
Vibrators, Pneumatic	127		
Viscometers	54		
W			
Water Coolers, Drinking	96		
Water Hardness Testing	92		
Water Mixer, Thermosatic	48		
Waterproofing Compounds	84		
Water Repellents	24, 25		
Waxes, Synthetic	33		
Welding Electrodes	41		
Welding Masks, Toxic-fume-area	12		
Welding Rods	41		
Wetting Agents	24, 25		
Wheels, Metal	71		
Wheels, Rubber	71		
Wheels, Rubber-tired	41		

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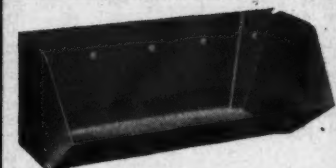
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CHEMICAL PROCESSING

Advertisers in this issue

A	D
Abbe Engineering Co. 126	Davis Regulator Co. 100
Acme Copper Mining & Ma- chine Co. 9	Day Company, The 72
Acme Steel Company 98	Dayton Safety Ladder Co. 82
Adams Co., Inc., R. P. 62	Deming Co., The 77
Albion Accessories Corpora- tion 70	Despatch Oven Co. 102
Aircroft Manufacturing Com- pany 62	Detroit Hoist & Machine Co. 40
Alberene Stone Corporation of Virginia 100	Diamond Chain Company, Inc. 123
Allis-Chalmers Mfg. Co. 11, 84, 133	Dicalite Division, Great Lakes Carbon Corporation 14
Allmetal Screw Products Co. 114	Dings Magnetic Separator Com- pany 92
Altop Engineering Corporation, The 94	Dixie Machinery Mfg. Co. 122
Aluminum Company of Amer- ica 91, 121	Dorr Company, The 85
Aluminum Company of Amer- ica, Chemicals Division 17	Dow Chemical Company, The 18
American Brake Shoe Com- pany, Electro-Alloys Division 33	Dow Corning Corporation 31
American Wheelabrator & Equip- ment Corp. 64	Doyle Company, The J. E. 102
Ames Iron Works 102	Du Pont de Nemours & Co., Inc., E. I., Polychemicals Dept. 32
Amesberger Bros., Inc. 104	Du Pont de Nemours & Co., Inc., E. I., Electrochemicals Dept., Vinyl Products 31
Annin Company, The 117	Durametallic Corporation 74
Anvil Chemical Company, Fire Extinguisher Division 96	Duriron Co., Inc., The 70
Anvil Chemical Company, In- dustrial Chemicals Division 127	E
Antra Products, General An- iline & Film Corporation 24	Eclipse-Pioneer Division, Bendix Aviation Corporation 112
Archer-Daniels-Midland Co. 29	Edwal Laboratories, Inc. 30
Armstrong Machine Works 15	Edward Valves, Inc. 88
Arkana Regulator Company 15	Elliott Company 58
Opposite page 15	Eriez Manufacturing Company 59
B	Ertel Engineering Corporation 123
Bacharach Industrial Instru- ment Co. 53	F
Baker & Adamson Products, General Chemical Division, Allied Chemical & Dye Cor- poration 2nd Cover	Farval Corporation, The 70
Baker Industrial Truck Divi- sion of The Baker-Raulang Company 38	Federated Metals Division, American Smelting and Re- fining Company 30
Baer Bros. Co., The 74	Felt Products Mfg. Co. 33
Beach-Russ Co. 113	Filtration Fabric Division, Fil- tration Engineers, Inc. 60
Bia-Dicator Co., The 52	Filtrol Corporation 28
Bird Machine Company 119	Fischer & Porter Company 44, 52
Blackmer Pump Company 134	Fisher Scientific Co. 98
Black, Sivalls & Bryson, Inc. 66	Flextrock Company 84, 134
Blaw-Knox Division of Blaw- Knox Company 90, 123, 68	Fosboro Company, The 45
Blickman, Inc., S. 134	Fulton Bag & Cotton Mills 88
Bundy Company, W. H. 105	G
Brighton Copper Works, Inc. 106	Gallagher Company, The 110
Bristol Company, The 49	General Ceramics and Steatite Corp. 118
Brookfield Engineering Labora- tories, Inc. 54	General Electric Company 58
Buffalo Forge Company 131	Glycerine Producers' Associa- tion 27
Buffalo Meter Co. 47	Grinnell Company, Inc. 76
Bufflovak Equipment Division of Blaw-Knox Company 114	Gruendler Crusher & Pulverizer Co. 64
Builders-Providence, Inc. 53	H
Burrell Co., The 51	Hapman Conveyors, Inc. 40
B/W Controller Corporation 44	Hardinge Company Incorporated 108
C	Harwick Standard Chemical Co. 28
Cambridge Instrument Com- pany 50	Hays Corporation, The 50
Cambridge Wire Cloth Co. 59	Hewitt-Robins Incorporated 36
Carbide and Carbon Chemicals Division, Union Carbide and Carbon Corporation 28	Hills-McCanna Co. 54
Carboline Co. 30	Homer Manufacturing Co., Inc., The 100
Catawissa Valve & Fittings Co. 126	Hooker Electrochemical Com- pany 26
Celanese Corporation of Amer- ica, Chemical Division 19	I
Chase Bag Co. 13	Illinois Testing Laboratories, Inc. 48
Chelsea Fan & Blower Co., Inc. 116	Industrial Filter & Pump Mfg. Co. 83
Chicago Bridge & Iron Com- pany 97	Industrial Products Company 10
Chicago Float Works, Inc. 127	Ingersoll-Rand Company 128
Clark Manufacturing Company, The 6	Instant Drying Corporation, Inc. 86
Cleveland Vibrator Co. 127	International Engineering, Inc. 3rd Cover
Cleveland Wire Cloth & Mfg. Co., The 113	International Nickel Company, Inc., The 111
Cleveland Worm & Gear Co., The 108	International Paper Company, Bagpak Division 78, 79
Cochrane Corporation 48	Island Equipment Corp. 40
Cole Manufacturing Co., R. D. 122	
Coleman Instruments, Inc. 53	
Colson Equipment & Supply Co. 36	
Condit Corporation 86	
Consolidated Packaging Machin- ery Corp. 84	
Continental Can Company 35	
Crane Co. 95	
Crane Packing Company 124	
Cuno Engineering Corporation 73	

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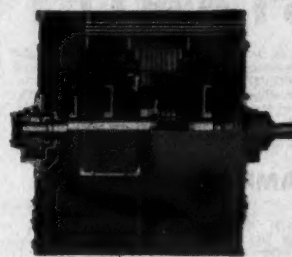
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When inquiring check CP 7480 on handy form, pgs. 2-3

Jabaco Pump Company 132
Johns-Manville Corporation 4th Cover
Johnson Corporation, The 116

K

Kalamazoo Tank and Silo Company 98
Kellogg Company, Inc., The 107
Kemp Mfg. Co., The C. M. 7
Keweenaw Mfg. Co. 86
Kinney Manufacturing Company 116
Kick & Blum Mfg. Company, The 82
Knight, Maurice A. 6
Kold-Hold Mfg. Co. 128
Kuhns Brothers Co., The 80

L

Ladish Company Opposite page 14
Lamson Corporation 120
Lapp Insulator Co., Inc. 86
Lawrence Machine & Pump Corporation 122
Les Metal Products Co., Inc. 130
Leape Hydraulic Pressing and Forging Co. 112
Link-Belt Company 76, 129, 132
Liquidometer Corp., The 50
Lovejoy Flexible Coupling Co. 114

M

McDowell Manufacturing Company 68
Magnus, Mabce & Reynard, Inc. 33
Manton Gaulin Manufacturing Co., Inc. 63
Marley Company, Inc., The 62
Mason-Neilan Regulator Co. 47
Mercoid Corporation, The 109
Meriam Instrument Co., The 42
Metallab Equipment Corp. 108
Micro Metallic Corporation 108
Monsanto Chemical Company 24, 25
Morganite Incorporated 113
Morris Machine Works 41
Mortell Co., J. W. 32
Murphy & Co., Jas. A. 87

N

National Adhesives 125
National Box & Lumber Company 84
National Filter Media Corp., The 97
National Rubber Machinery Co. 89
National Technical Laboratories 46
Newark Wire Cloth Company 72
Niagara Filter Corporation 75
Nicholson & Co., W. H. 87
Nordstrom Valve Division, Rockwell Manufacturing Co. 110
Northern Blower Company, The 103

O

Oliver United Filters, Inc. 87
Omega Machine Co. 124

P

Palmer-Shile Co. 38
Pangborn Corporation 126
Patterson-Kelley Co., Inc. 60
Pawrucket Manufacturing Company 118
Peculiar Pump Division, Food Machinery and Chemical Corporation 115
Pennsylvania Industrial Chemical Corp. 31
Perkin-Elmer Corporation, The 52
Pfaudler Co., The 3
Pfeifer & Co., Inc., Chas. 12
Pioneer Rubber Company, The 104
Pittsburgh Coke & Chemical Company 20
Pittsburgh Equitable Meter Division, Rockwell Manufacturing Company 51
Peters Regulator Co., The 48, 52

Pressed Steel Tank Company 37
Proctor & Schwartz Inc. 101
Propellair Division of Robbins & Myers Inc. 120
Pulverizing Machinery Company 77
Pure Carbonic, Incorporated 22
Pyrometer Instrument Company, The 50

R

Read Machinery Division of The Standard Sinker Company, Inc. 73
Reichhold Chemicals, Inc. 21
Revere Copper and Brass Incorporated 71
Richardson Scale Co. 110
Ridge Tool Co., The 132
Rockwell Co., W. S. 90, 92
Root-Connorsville Blower Corporation 109
Roper Corp., Geo. D. 104
Roth Co., Roy E. 73
R-S Products Corporation 67

S

Sabin Machine Co., The 83
Safety Car Heating & Lighting Co., Inc., The, Entoleter Division 109
Saranac Machine Company 83
Schinker Mfg. Co., Michael A. 64
Schutte and Koerting Company 43
Screw Conveyor Corporation 41
Sharples Corporation, The 69
Shriver & Company, Inc., T. 74, 120, 126
Sly Manufacturing Co., The 81
Sparkler Manufacturing Co. 93
Spencer Turbine Company, The 118
Sperry & Co., D. R. 134
Spraying Systems Co. 68
Sprout, Waldron & Co., Inc. 38
Standard Conveyor Company, Inc. 76
Steel and Tubes Division, Republic Steel Corporation 106
Sterling Electric Motors, Inc. 112
Stokes Machine Company, F. J. 77
Sturtevant Mill Company 65
Syntrol Company 61

T

Tarbons Company, The 22
Taylor Forge & Pipe Works 37
Taylor Instrument Companies 48
Taylor, Stiles & Co. 112
Thomsen & Sons, Inc., L. C. 106
Titellex, Inc. 105
Torsion Balance Company, The 55
Trent Inc. 122
Tretco Co., H. O. 54
Tri-Clover Machine Co. 4

U

Union Carbide and Carbon Corporation, Carbide and Carbon Chemicals Division 28
Union Special Machine Co. 36
United States Gasket Co. 96
United States Testing Company, Inc. 7
U.S. Electrical Motors, Inc. 10
U.S. Stoneware Co., The 61

V

Van Range Co., The John 128
Vapor Recovery Systems Co., The 44
Veliscol Corporation 56
Victor Chemical Works 32

W

Welding Fittings Corp. 72
Western Precipitation Corporation 99
Willson Products, Inc. 105

Y

Yale & Towne Manufacturing Co., The 41
Yarnall-Waring Company 5

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CHEMICAL PROCESSING

"That's Interesting"

Caesium rectifier 98% efficient

A vacuum tube called a caesium rectifier converts alternating current to direct current. It is said to be more than 98% efficient and, because of its self-renewing qualities its life is practically infinite.

The tube was described by Dr. Albert W. Hull, consulting scientist of the General Electric Research Laboratory, speaking before the American Institute of Electrical Engineers in New York. He termed the tube "a new development of considerable promise, though still at the experimental stage." (General Electric Company, Schenectady, N. Y.)

Mushrooms yield clue to major source of wood rot

A material believed to be one of the major causes of the rotting of wood has been isolated from mushrooms by Dr. Sidney Gottlieb of the University of Maryland.

Dr. Gottlieb's explanation is that it is impossible for microorganisms to initiate the rotting process without the use of a chemical it produces itself. The main enzyme for the rotting of lignin in wood, was found to be ligninase and mushrooms are an abundant source of this.

With the isolation of ligninase, it is now hoped that it will be possible to get rid of the lignin, unwanted by industries. A "pre-rotting" process of some kind is foreseen.

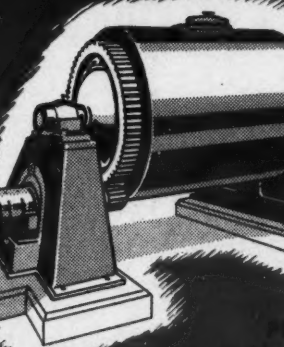
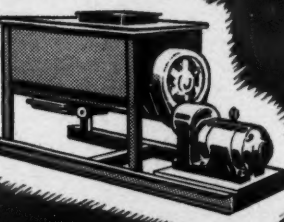
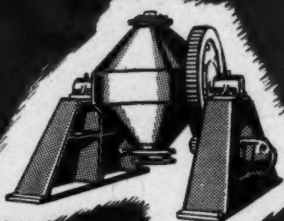
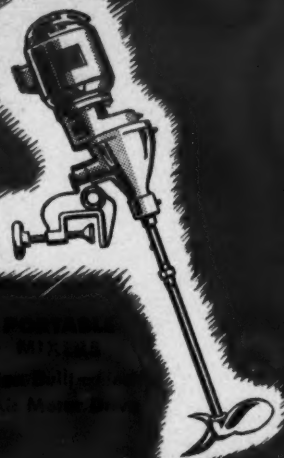
Device makes plastic ribbon for telegraph machines

Tape is made on the spot, as needed, for coding messages to be sent by automatic sending machines. Clarence W. Hansell, of Port Jefferson, N. Y., has devised such a set-up. Polyethylene or other thermoplastic substance, is fed out through a slit in a reservoir to form a tape just before it reaches the perforator. When tape has served its purpose, it goes back into pot again to be melted down and reused, eliminating waste involved in paper tape. Patent 2,476,862, covering this device, has been assigned to Radio Corporation of America. (As reported in *Aminco Lab News* — American Instrument Co., Inc., Silver Spring, Md.)

Inconel for chloromycetin

Chloromycetin, one of the newer mold fermentation pharmaceuticals, is now under full scale plant production in equipment in which vital units are made of Inconel. Performance of this alloy in the production of this antibiotic serves as a basis for expanding its use in the manufacture of others in this rapidly developing pharmaceutical field. (International Nickel Co., New York 5, N. Y.)

For more information on product at right, specify CP 7483
see information request blank between pages 2-3



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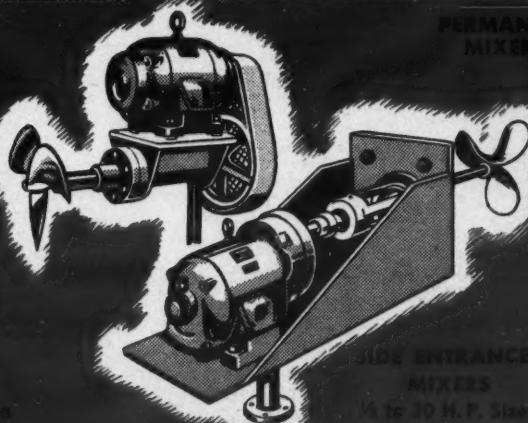
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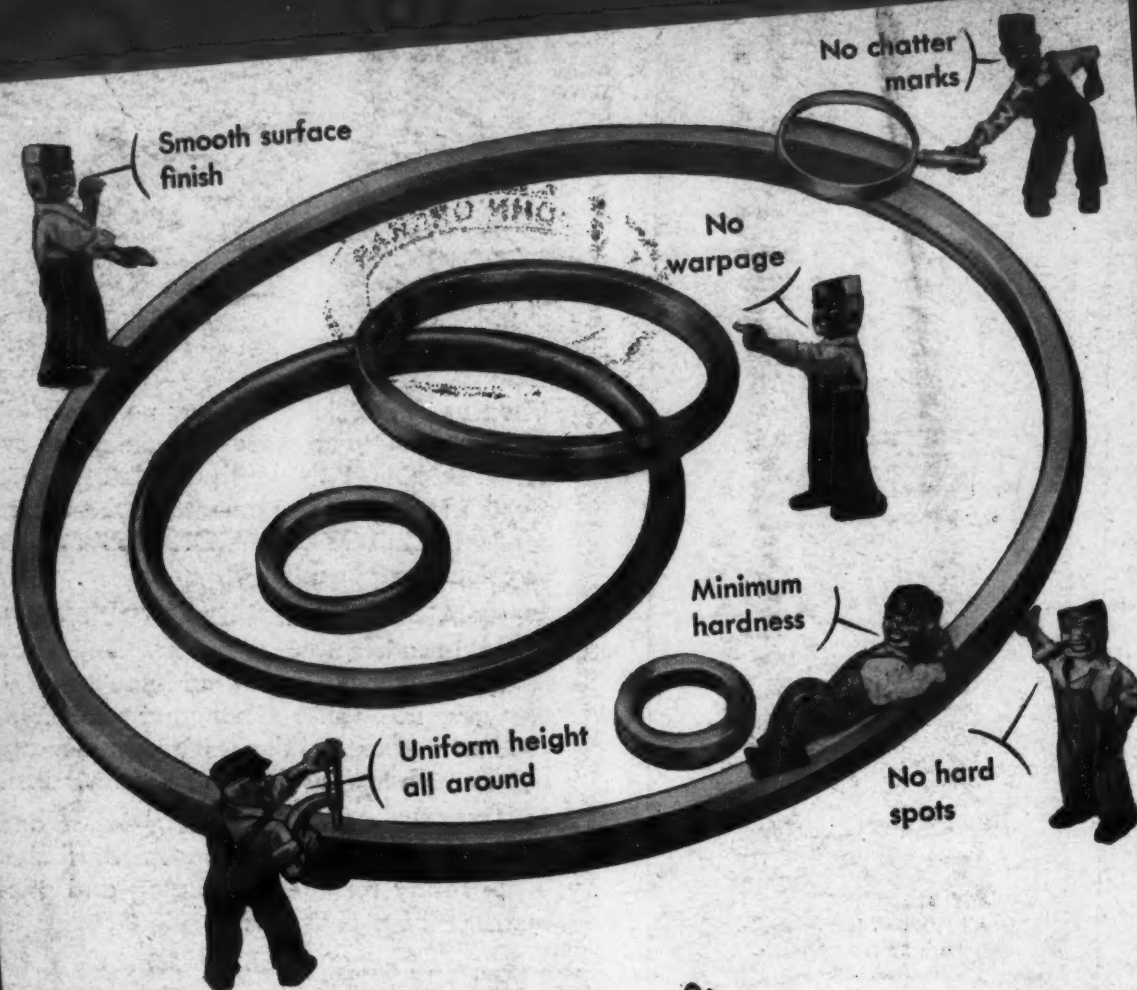
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One sure way to tell quality in a gasket designed for ring-joint flanges is to check the hardness. In Goetze V-Tites, carefully controlled heat treatment during fabrication keeps hardness down to a minimum. The hardness of a Goetze soft iron V-Tite Gasket, for example, does not exceed 90 Brinell.

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spots in a Goetze V-Tite), proper flow or seating of the gasket, without damage to flange surfaces and with minimum bolt stresses, is always assured.

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... other tolerances are well within API and ASA specifications to assure a perfect fit in the flange grooves.

In addition to soft iron, Goetze V-Tite Gaskets are made in a number of alloys in all standard ASA and API shapes and sizes. Gaskets of special dimensions are also available. For further details, write for Catalog PK-35A. Johns-Manville, Box 290, New York 16, N. Y.



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